

Fleet Manager Toolkit

Reducing your Environmental Impact

LoCITY

DRIVING





1 LoCITY Fleet Manager Toolkit

LoCITY Fleet Manager Toolkit is part of a series of tools, guidance and training produced by LoCITY, FORS Professional and Transport for London (TfL), to help:



Reduce the impact of van and HGV fleets on the environment and on public health



Cut delays and decrease congestion



Improve the safety of drivers, vehicles and vulnerable road users



Assist with meeting regulatory obligations

1.1 Users

This LoCITY Fleet Manager Toolkit is for use by anyone who manages commercial vans or heavy goods vehicles (HGVs). The toolkit provides practical advice and guidance to help implement robust policies, management systems and training that will reduce fuel consumption, vehicle emissions and improve safety. It is applicable regardless of the organisation's market sector, fleet size or its mix of vehicle types.

1.2 Contents

The toolkit is based around an environmental fleet management policy (a template is included) which is supported by the tools, resources and internal communications material needed to implement it. The tools are designed to help fleet managers develop, communicate and implement effective processes that measure, manage and reduce the environmental impact of using commercial vehicles in London.

In addition to this toolkit there is a focused training package for drivers, providing them with fuel efficient driving skills which qualifies for CPC training hours.

The LoCITY Toolkit approach has many benefits including reduced fuel consumption, lower operating costs, reduced emissions, less driver stress and an enhanced business reputation.



1.3 Using the Toolkit

The toolkit is structured to take you step-by-step through the process of managing your emissions by controlling your fuel consumption. It starts with formulating policy and ends with evaluating the outcomes and reviewing your policy. The basic steps are:

- 1 Establish an environmental fleet management policy and get full buy-in from your senior management team
- 2 Measure your current fuel consumption and emissions to establish a robust benchmark year
- 3 Agree emission reduction targets based on the benchmark and communicate them to all affected staff
- 4 Implement a training program and procedures to give your drivers the tools they need to meet the targets
- 5 Monitor the outcome of the training and the performance of the drivers and the fleet against the targets
- 6 Provide feedback to drivers and management of performance against targets
- 7 Review at year end, revise policy if needed, set new targets, communicate and consider more training

It is very likely that we are now entering a period of change in the transport sector especially in motive power as we move from diesel to cleaner fuels and energy sources. The toolkit process is a great way of keeping everyone involved in the operation of your fleet; your managers, drivers, fitters, despatchers and even your sales force up to speed and ready to work with new technology as it emerges and to promote your progress to your customers.

1.4 Questions

If you have questions about the content or would like any further advice or support, please get in touch by emailing:

- **enquiries@locity.org.uk** for ultra low emission vehicles enquiries
- **enquiries@fors-online.org.uk** for FORS operating standards and support

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2 LoCITY

Poor air quality is now a national and international issue. It affects most of the UK's towns and cities; London is particularly badly affected.

Radical solutions are being proposed and some have been implemented; the Mayor of Paris has banned cars built before 1997 from the city centre between 8am and 8pm, other cities have used colour coded windscreen badges to ban the highest emitting vehicles when pollution is at its worst. In London, the Mayor has announced the introduction of a £10 surcharge on older vehicles entering the Congestion Zone so that pre-Euro 4 vehicles will now pay a total of £21.50 per day to enter the zone.

Air pollution is important because it presents a major threat to public health; in 2016 across the UK air pollution was found to cause the equivalent of 40,000 premature deaths. In London, over 440 schools were in areas that exceeded safe air quality limits. The list of medical conditions caused by or exacerbated by air pollution seems to grow each year; strokes, coronary disease, low birth weight, premature birth, respiratory illness and even dementia have all been robustly linked to air pollution by research.



In 2016 across the UK air pollution was found to cause the equivalent of 40,000 premature deaths.

The European Union (EU) has set legal limits for concentrations of these pollutants; they apply to the UK and are embedded in UK law. London is one of several UK cities that are currently in breach of the legal limits for NO₂. Action must be taken to reduce vehicle emissions because in London, of the two principle pollutants, road transport accounts for 63% of Nitrogen Dioxide (NO₂) and 52% of Particulate Matter (PM) emissions. Commercial vehicles - vans and HGVs - are responsible for a significant proportion of these road transport emissions.



TfL is leading the way in reducing the environmental impact of commercial vehicles operating in London. It has developed the industry-led LoCITY programme in collaboration with fleet operators, manufacturers, government and trade associations.

2.1 Aims of LoCITY

LoCITY has been established to help mitigate commercial vehicle emissions, one of the causes of poor air quality. It offers a unique opportunity for vehicle manufacturers, fuel infrastructure providers, procurers and commercial fleet operators to collaborate to ensure we have the right technology, the right vehicles and the right fuels to reduce the impact of commercial vehicles on the environment.

LoCITY is working to stimulate the supply and uptake of low emission commercial vehicles and improve the infrastructure needed to operate these vehicles. This will make it easier for operators to invest in new technology. LoCITY also supports the introduction of new programmes and initiatives, which aim to lower emissions and improve air quality.

2.2 Clean Air Zones (CAZ)

A CAZ is designed to improve air quality by restricting the number of high polluting vehicles, or encouraging the uptake of lower emission vehicles, on certain roads in areas with the poorest air quality. By 2020 there will be at least five CAZs in the UK, in Birmingham, Derby, Leeds, Nottingham and Southampton. Action in the High Court in November 2016 has meant that it is highly likely that the requirement to implement a CAZ will be expanded to include many more UK towns and cities. Initially it was thought that the CAZ would be restricted to HGVs, buses and taxis but in Birmingham and Leeds the plans were quickly expanded to include vans and it now seems likely that all vehicles will be included.

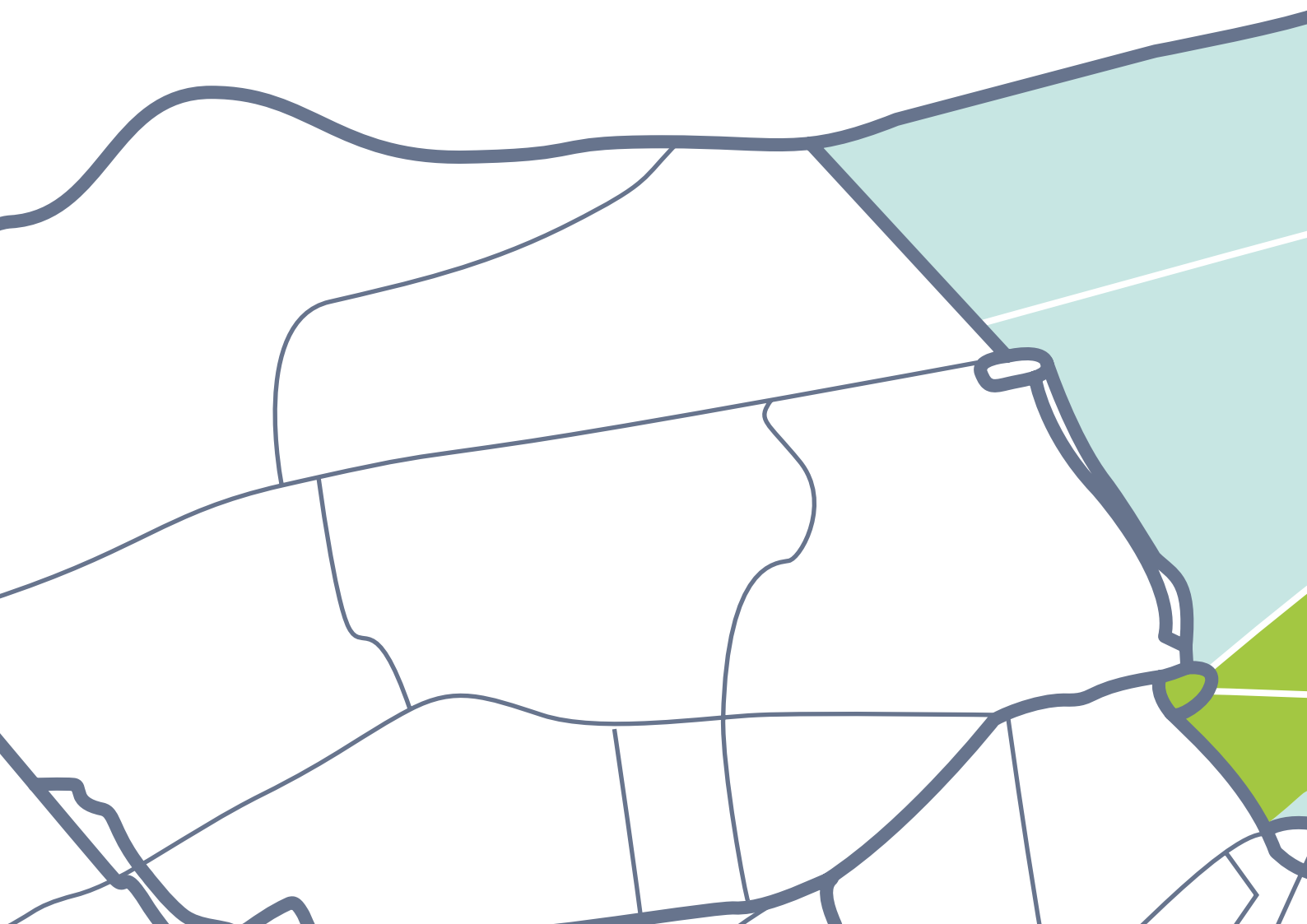


2.3 Low Emission Zones (LEZ)

London's LEZ, an early type of CAZ, was introduced in 2008 to discourage the most polluting heavy diesel vehicles from operating in the Capital. The zone requires that vehicle engines meet specific European standards and covers most of Greater London. Vehicles which do not meet the standards are subject to a daily charge.

2.4 Ultra Low Emission Zone (ULEZ)

By 2019, the world's first Ultra Low Emission Zone will be introduced in London, subject to consultation. All cars, motorcycles, vans, minibuses, buses, coaches and HGVs will need to meet exhaust emission standards (ULEZ standards), or pay a daily charge when travelling in central London. The ULEZ may be expanded to encompass the area demarcated by the north and south circular roads for all vehicles, and to the current LEZ boundary for HGVs, subject to consultation. The standard for charge-free entry into the zone will be Euro VI/6 for all diesels, Euro 4 for petrol powered cars and vans, and Euro 3 for motorcycles and L-category vehicles.





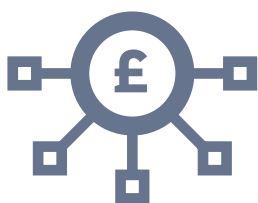
3 Establishing Policy

An Environmental Fleet Management Policy is essential for communicating your commitment to reducing emissions, improving air quality and protecting both the environment and public health. The policy should apply to all levels of your organisation; the board, senior management, management (including HR and H&S), supervisors, fitters, mechanics, drivers and any other employee responsible for or involved in the operation of your commercial fleet.

Engage with the group which is responsible for the day-to-day operation of the fleet as part of the process of formulating the policy. A workshop for operational managers, a questionnaire for drivers, briefings at monthly meetings, articles in company newsletters and on the intranet can make the whole team feel that they have been consulted.

Then, when it comes to implementing the policy, it will not come as a surprise to this key group of employees and there will already be some understanding of the policy objectives.

It is very important for the credibility of the policy that a member of the senior management team has ownership of the policy and is responsible for monitoring progress and reporting on performance to the management and to the board.



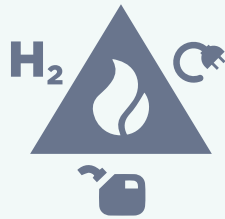
Your policy should seek to implement measures that:

- Demonstrate organisational commitment at all levels
- Establish goals to prevent pollution and minimise the environmental and health impacts of your operations
- Improve awareness of the environmental and health impacts and the need to reduce emissions
- Develop positive attitudes and behaviours that lead to a reduction in the fuel used by your commercial fleet



To achieve your environmental objectives:

- Tailor the contents of your policy to meet your organisation's business needs
- Implement robust supporting procedures that encourage the right behavioural change
- Communicate and manage the policy effectively



Your policy should cover:

- Vehicle selection, procurement and maintenance
- Fuel monitoring systems and procedures
- Fuel efficient driving (including engine idling)
- Optimum loading and route planning
- Driver and vehicle performance management



It should ensure:

- Fleet data is collected and analysed to establish benchmarks and targets
- Systems are in place to regularly monitor performance against those targets
- Vehicles are serviced to maintain optimum performance standards
- The types of vehicles in use are regularly reviewed to ensure they are fit for purpose
- Drivers are encouraged to adopt fuel efficient driving techniques
- Journeys are planned to maximise load and minimise the distance driven and the fuel used
- Engine idling is minimised to reduce both fuel used and emissions

If the Environmental Fleet Management Policy is not adhered to, for example if a driver repeatedly fails to follow fuel efficient driving practices, there will need to be a clearly defined performance management process in the policy document to address the issue.

You must ensure effective communication of the policy as well as the roles and responsibilities of all managerial and supervisory staff. Drivers should be made aware of their individual roles and responsibilities in ensuring the policy is successful in achieving its objectives.

You will also need to ensure that the policy is kept up to date and that any changes are adequately communicated to those affected by them.

For a Policy Template see: Appendix: Environmental Fleet Management Policy.

4 Benchmarking Your Fleet

Before you can identify where savings can be made you need to establish your current performance, only then can you set appropriate and achievable targets. A more comprehensive LoCITY Guide to Benchmarking is available from the website.

Ideally, you should be able to measure the performance of each vehicle and driver. If you do not currently have the systems in place to do this then one objective for your new policy would be to establish accurate and detailed monitoring of the fleet's performance. In the absence of vehicle and driver data try to establish annual gross fuel consumption and gross fleet mileage to use as a basic benchmark.

4.1 What to Measure

The two most important pieces of data for you to know for every vehicle in your fleet are mileage driven (or kilometres) and fuel consumed. How far did it go and how much fuel - or energy - did it use? With these two pieces of data you can determine fuel consumption, energy efficiency and carbon emissions (tonnes and grams per kilometre - g/km). You may want to link this data to a business metric, for example: tonnage of materials delivered, tonnage of waste collected, number of households serviced, number of bin lifts, number of call-outs attended; whatever fits your business.



4.2 How to Measure

There are lots of ways of tracking fuel use available to fleet managers and the different types of fuel management technology in the marketplace today include:



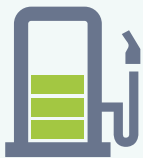
Fuel Management System:

Refuelling hardware and software which can support on-site refuelling from bulk tanks and can integrate data from off-site refuelling using fuel cards.



Fuel Card:

These typically track off-site fuel purchases using a company fuel card linked to the vehicle's registration details. Most try to capture mileage but this is usually unreliable and is best derived from the tachograph or daily worksheets.



On-Board Telematics Systems:

Commercial vehicle systems record fuel used with a high degree of accuracy and will calculate mpg. Telematics can address the problem of hot-seating vehicles as the vehicle's fuel consumption as calculated by the telematics can be linked to the driver.

With systems in place to collect the data it is important that you consolidate the information you hold about vehicle mileage and fuel use at least monthly and try to do this with as little manual intervention possible.

4.3 Setting Targets

With the benchmark data gathered you can identify some Fleet Performance Indicators (FPI) such as fuel consumption (mpg if it is a mono-fuel fleet), fuel cost in £/mile, £/km or £/tonne load. You can also calculate carbon emissions as kg CO₂/km and total tonnage of CO₂ and these can be included in your FPI.

Combining this dynamic data with other information about your fleet will allow you to put together a “Fleet Sustainability Dashboard” to assist with reporting on your targets and progress to the business.

4.4 Providing Feedback

Several organisations have reported that fuel consumption improves as a direct result of simple feedback to drivers and that this occurs before driver training has started. Some use a league table of the top 10 most fuel efficient drivers but a simple table for each driver can also work well:

Driver	Vehicle Fleet	Best mpg	Average mpg	Worst mpg	Your mpg
James Clarkson	17t Trucks	13.8	10.5	7.8	9.8





5.2 Running an Emission Reduction Campaign

You may wish to approach your new targets for reducing fuel use and associated emissions as an internal campaign to reduce emissions and improve energy efficiency. Running it as a campaign can impress on staff that the organisation is serious about improving air quality, minimising its impact on the environment and increasing fleet fuel efficiency.

As a fleet manager, you can run the campaign or you could consider appointing a fuel efficiency champion to lead the project. Your organisation may already have an energy efficiency champion and the campaign could be integrated into their activities. Running a successful internal campaign requires you to:



Plan the campaign – Get the buy-in from all key stakeholders at the initial planning stage. Produce a project plan setting out the timescales and who is responsible for delivering tasks. Also, develop the success criteria of the campaign so you know what good looks like and communicate any consequences should change not happen.



Set clear campaign objectives – A good campaign requires focus. If you try to do too much, you won't do anything well. Your campaign should raise awareness and change behaviour.



Be honest about what might be difficult – It is good practice to understand what might be difficult to achieve. Staff will be motivated if they believe that the environmental and financial benefits can be achieved and that your approach is realistic.



Be clear on your target audience – The campaign isn't about you, your customers or the public. It's for your staff. Use imagery, words and language that appeals to them and focus on what they will read, where they will read it and when they need to see it.



Deliver the campaign – This toolkit has many of the materials needed for you to deliver your campaign, consistently, efficiently and at minimal cost.



Stay on message – Messages need to reach and convince your target audience. This toolkit includes examples of the key messages. Once agreed, they should be communicated to all staff and enforced. This requires discipline. It's easy to be pulled off message by other operational demands.



Offer drivers incentives – A simple thank you or well done can have a large impact. League tables can help boost morale but you may wish to consider reporting only the top 10 to avoid demoralising the rest. Financial incentives should be considered but be aware that they may encourage the wrong response – choosing a charity to share in the savings can be very motivating especially if an employee is personally involved in the cause.



Engage with subcontractors – Subcontractors represent your company and so if you use them they should be included in your policy. Existing contractors should be encouraged to adopt similar policies, procedures and targets to your own. Make sure that when subcontractors are appointed in the future this is a requirement of their contract.



Communicate the results – This should be an ongoing process, you should monitor progress, provide regular feedback on performance and undertake periodic briefings to ensure the benefits are locked in for the long term. Think about having a fleet performance dashboard on the intranet so it is open for all to see.



Maintain momentum – After your initial burst of activity, make sure you maintain momentum by introducing new communications material, sharing success stories and reporting progress.

5.3 Preparing for the next cycle of savings

After you have met most of the targets in your initial project plan or completed the first year of your plan you will need to evaluate the success of your policy and consider new targets for the next cycle of fuel savings and emission reductions.

The organisation should now be aware of the focus on reducing fuel use and cutting emissions. Drivers, operational managers and all the team involved in fleet operations should be trained in fuel efficiency and understand the corporate policy and objectives. All the people who have contributed to the success of your initial campaign can help you formulate what to do next. They are now informed, aware and may well have many ideas of their own on how the company fleet can be operated more efficiently. Think about how you can engage them in the process of developing the targets for next cycle of improvements. Questionnaires, workshops, feedback forms, an energy saving reward scheme; these are all valid ways of engaging with staff and getting them to contribute their ideas.

The first cycle of savings will have focused on the quick wins, the next cycle is unlikely to be as straightforward so get all the help you can in formulating new targets and objectives.



6 Training Resources

There are several training and eLearning options developed in collaboration with Transport for London and FORS Professional to complement the LoCITY Fleet Manager Toolkit.

For Your Drivers

LoCITY Toolbox Talks

which are designed to be quick and easy to deliver in house. They can be given by the fleet manager, fuel champion, line manager or lead driver.

LoCITY Driving training course

a driver CPC training course.

LoCITY Driving Time to Clean Up

an e-learning module.

For Fleet Managers

FORS Practitioner Workshops

Workshop 7 covers reducing fuel use and environmental impact.

LoCITY Driving Time to Look Ahead

an e-learning module.

6.1 LoCITY Toolbox Talks

A toolbox talk (TT) is a short briefing to employees - usually drivers - on a single aspect of their duties. The TT should focus on a specific issue, be short, interesting and relevant. All the TTs should contribute to the understanding of your Environmental Fleet Management Policy and to meeting your targets of improving fuel efficiency and reducing emissions. There are five suggested TTs in this package but you can write your own if there is a topic you feel it is important to cover.

Using Toolbox Talks

There is no single right way to deliver a TT; some are best delivered as a short workplace briefing, others might benefit from a more formal presentation at a team meeting. If you are talking about in-cab computers and telemetry, then the best place to deliver the TT may be to small group in the cab of one of your vehicles.

To deliver a TT you need to know your company's policy on the given topic and have a wider understanding of the topic than is covered in the talk so you can answer questions. You can incorporate other information into your talk if it helps understanding or is relevant to your objectives. The following hints and tips will help you deliver an effective TT.

Simplicity

- Keep it simple and be consistent with your messages which must tie in to the company policy
- Use short, straightforward words and phrases
- Avoid slang words or jargon, if you must use terms like LPG tell people what the letters stand for

Pace

- Think about the speed of your delivery and the key facts you want to deliver
- Take your time and slow down, it's natural to rush when you are nervous
- If you rush you may come across as impatient and your audience may feel there is no time for questions

Stay positive

- Keep the briefing upbeat and report on the company's success stories
- Focus on what drivers can do instead of what they cannot do
- Use the key points provided in the TT briefing and focus on delivering these well

Key points

- Most people's attention span is limited so a TT should be brief; usually no more than 30 minutes
- Some drivers may need more explanation than others, try explaining things differently second time
- People will only remember 25% to 50% of what you said so back it up with handouts

Check understanding

- Ask questions - pose, pause, pounce - ask the question before you choose who to answer
- Use open questions to check people's understanding not questions with Yes/No answers
- Ask drivers to explain what you have said in their own words

Summarise

- Repeat your main points at the end of the TT
- Get feedback on the impact, messaging and content of the TT

Signpost where to get further information and provide it

- Make sure the information is available on your intranet and that drivers have access to it
- Point them to the relevant documents like the Drivers' Handbook
- Email or hand everyone a pdf at the end of the TT with a summary of the key points

At the end of the talk signpost drivers to the organisation's Environmental Fleet Management Policy and the current targets to improve fuel efficiency and reduce emissions. Finally, if there is something you don't know then say so and tell them you will come back to the whole group with an answer. Don't make it up!

6.2 LoCITY Driving

Fuel efficiency and environmental awareness driver training.

What is LoCITY Driving?

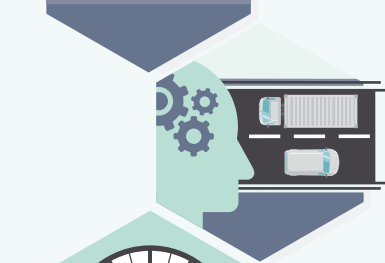
LoCITY Driving is a one-day training course for all commercial drivers, which focuses on minimising impact on the environment. Drivers learn how to improve fuel efficiency through vehicle maintenance, journey planning and driving techniques, in order to operate efficiently on busy urban roads and reduce operating costs.

LoCITY Driving overview

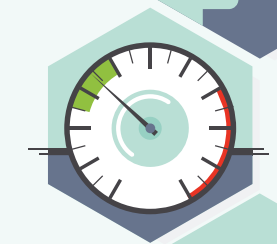
LoCITY Driving focuses on the environmental challenges and air quality issues of driving in cities and towns. It is based on five themes. There are many interpretations of good fuel efficiency and driving techniques and the LoCITY themes have been developed to help embed the principles in a memorable way. The five simple messages are echoed throughout LoCITY Driving training:



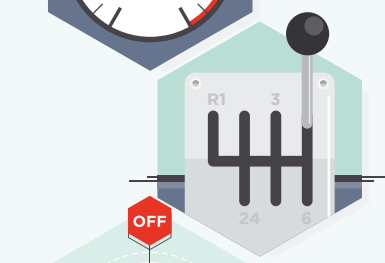
Get set: Check your vehicle and prepare for your journey



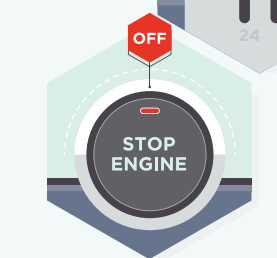
Think ahead: Observe, anticipate and think ahead to apply fuel efficient driving techniques



Smooth ride: The more you brake the more you accelerate



Get in gear: Use your gears wisely to maintain an efficient engine speed



Power off: Idling gets you nowhere so switch off when stationary

Who should attend LoCITY Driving?

LoCITY Driving is essential training for all commercial vehicle drivers and is applicable to all sectors. The training raises awareness of the environmental impact of emissions, fuel efficiency, cleaner vehicles and alternative fuel technologies. HGV drivers have a greater responsibility than ordinary driving licence holders, as they are employed to drive. Therefore, they are required to drive professionally, responsibly and with consideration for the environment and other road users.

What drivers will learn from LoCITY Driving?

LoCITY Driving follows a comprehensive course programme that also aligns to the Driver Certificate of Professional Competence syllabus. The course covers the following topics:

- Fuel efficiency and air quality
- Vehicle checks and journey planning
- Fuel efficient driving techniques
- Journey planning exercise
- Value of vehicle design and technology
- Monitoring and managing driving performance
- Using alternative fuels in commercial vehicles

LoCITY Driving Training Objectives see: Appendix: Section 11.





6.3 LoCITY Driving e-learning

What is LoCITY Driving e-learning

LoCITY Driving eLearning comprises two self-paced learning modules that focus on the key environmental and fuel efficiency messages and describe some of the alternatively fuelled vehicles that are available. Both eLearning modules are available from the FORS website under Training > Drivers > eLearning.

LoCITY Driving eLearning overview

LoCITY Driving eLearning is designed to complement the broader toolkit and classroom training and is intended to be used as a refresher following the face-to-face training or as an optional extra.

The eLearning modules aim to increase driver and operator knowledge of the measures and technology available to improve air quality through fuel efficient driving and encourage those behaviours.

LoCITY Driving eLearning is structured in two parts:

- **Module 1** – Time to Clean Up
- **Module 2** – Time to Look Ahead

Module 1 is focussed primarily on HGV drivers, but will benefit van and commercial vehicle drivers or operators across all sectors. It can also be used by fleet managers to gain a first-hand experience of the material they are asking their drivers to study.

Module 2 is intended for those in van or HGV procurement or those able to influence buying decisions, fleet managers and those in a financial role. Each module should take no more than 25 minutes to complete.

Why complete LoCITY Driving eLearning?

Both eLearning modules give learners a chance to revisit the key environmental and fuel efficiency messages and content covered by the face-to-face training.

Module 1: Drivers

By the end of Module 1, drivers will be able to:

- List the key causes and effects of poor air quality in urban environments
- Identify the primary dashboard lights associated with an increase in unnecessary emissions and describe what action a driver should take in response to them
- Describe the impact of unnecessary payload and equipment on fuel consumption
- Describe the impact of unnecessary vehicle idling and state when to switch off and the benefits of doing so
- List key fuel efficient driving techniques
- Describe the role daily vehicle checks play in reducing fuel consumption and emissions
- Connect driver behaviour to fuel consumption and its environmental and social costs

On successful completion of this module, learners have the opportunity to print or save a certificate.

Module 2: Operators

By the end of Module 2, operators will be able to:

- List the main 'transition' and 'destination' fuels and technologies that are expected to replace petrol and diesel
- List the benefits and drawbacks of alternative-fuelled vehicles
- Describe the features of a plug-in hybrid vehicle

6.4 FORS Practitioner

What is a FORS Practitioner?

FORS Practitioner is essential professional development for fleet managers and supervisory staff. It is a series of half-day workshops that raise awareness of the latest industry best practice in safe, green and efficient fleet management. Delegates achieve 'FORS Practitioner' status once the full workshop suite has been completed.

FORS Practitioner overview

FORS Practitioner covers all aspects of fleet management and is open to FORS registered or accredited operators. The workshop topics are:

- Developing fleet management policy
- Managing work related road safety
- Managing driver fitness and health
- Managing driver training and development
- Post-collision procedures and analysis
- Safe and efficient fleet management
- Reducing fuel use and minimising environmental impact
- Minimising transport fines and charges
- Monitoring and measuring road fleet performance

FORS Practitioner workshops can be attended in any order. Delegates can attend one or more workshops but will only be awarded 'FORS Practitioner' status once the full workshop suite has been completed.

Workshop 7: Reducing fuel use and minimising environmental impact

FORS Practitioner – Workshop 7 follows a programme of learning, networking, discussion and best practice case studies. It covers the latest environmental issues and the solutions to address them. Workshop 7 training objectives help delegates:

- Manage fleet operations in the context of environmental impact and air quality
- Minimise fuel consumption and costs
- Use in-vehicle technology to monitor and improve driving performance
- Consider cleaner alternative fuels and their use in commercial vehicle fleets



7 Alternative Fuels Briefing

Plug-in Hybrid or Extended Range Vehicles

Overview

Plug-in hybrid (PHEV) and extended range (E-REV) vehicles are a good option if you need to drive in the city and travel longer distances between city centres. A PHEV has an Internal Combustion Engine (ICE) and a battery powered electric motor. It can run in electric-only, zero emission mode off the battery, or in hybrid mode using the electric motor and the ICE. There are many hybrid cars on the market but relatively few commercial vehicles. E-REVs are similar, but use a small ICE to re-charge the battery - not to directly drive the wheels - and this increases the single-charge range. Hybrids and extended range vehicles can use either diesel or petrol ICEs.

Benefits

There are no range limitations as these vehicles can operate on petrol or diesel when the battery depletes and can top up the battery with regenerative braking. They use less fuel and are cheaper to run than a conventional vehicle, in electric mode it is very good for air quality (zero tailpipe emission) and has low noise. Electric motors offer high torque at low speeds making them ideal for stop-start conditions.

Drawbacks

PHEVs and E-REVs cost more than conventional models. The additional battery and electric motor make them heavier which means the payload of commercial vehicles is slightly reduced. Load space, however, is usually unaffected. There is a concern with diesel hybrids that the use of the ICE in mild-hybrid mode when the battery is depleted may result in low exhaust gas temperatures from the diesel engine and less effective catalytic treatment of exhaust gases.

Performance

Range is typically limited to 30 to 100 miles in pure electric mode, depending on the vehicle specification and how it is used. The standard size fuel tank will provide a similar or greater combined range than an equivalent ICE vehicle. The hybrid is well suited to city, suburban and motorway driving. Recharging speed depends on the charging system and the capacity of the on-board charger. There are slow, fast and rapid charging systems; charging a 32kWh battery can take from 8 hours on a slow charger to 20 minutes to 80% capacity on a rapid charger.

Misconceptions

With electric vehicles range and the availability of plug-in recharging points are a concern but hybrids are not impacted by this as they can run in ICE-only mode. However, they do need to be charged regularly to maximise the cost and emissions benefit of the electric drive.

Typical model(s)

Make:	TEVVA vehicle (range extender)
Model:	Retrofit to an existing 7.5t truck

Battery Electric

Overview

Pure battery electric vehicles (BEV) are powered entirely by an electric motor using energy stored in a battery. Current models are best suited for city or suburban driving although this is changing as battery technology improves. Drivers can charge vehicles at home provided they have access to off-road parking and a charging point or an on-street charging bay. BEVs have zero tailpipe emissions although if charged from the UK grid there will be emissions associated with the electricity generation.

Benefits

When compared to diesel the BEV offers CO₂ savings of at least 35% even when taking grid electricity generation into account. The UK grid is getting less carbon intensive every year so this benefit will steadily increase. Additionally, BEVs produce zero pollutant emissions at the tailpipe. Electric vehicles qualify for a 100% discount on London's Congestion Charge. Electric motors offer high torque at low speeds making them ideal for stop-start conditions and are a pleasure to drive with low noise, good acceleration and simple controls.

Drawbacks

Most affordable electric vehicles have a range of up to 100 miles but vehicles are coming to the market with a range of 200 miles or more. Battery capacity is increasing rapidly as new and existing technologies are developed. The battery weight reduces payload slightly, depending on the size of the vehicle. Pure electric vehicles are more expensive to buy, but running costs are substantially lower than petrol or diesel equivalents. A typical car-derived electric van costs between two and three pence per mile for fuel.

Performance

Battery electric vehicles are currently best suited to city and suburban environments. A vehicle compatible with 32A charge points (which cost between £500 and £750 to install) will take around four hours to charge. Rapid chargers (located in all UK motorway and many trunk road services) reduce the time to charge to 80% capacity to about 25 minutes.

Misconceptions

These include concerns about poor range and expense. However, when used for city or suburban driving with recharging facilities on hand, these vehicles are an economical solution due to their low running costs. With planning, they can be used for inter-city travel as there are now rapid chargers in all UK motorways services and in many services on UK trunk roads.

Typical model(s)

Make:	Nissan
Model:	e-NV200
Load capacity:	770 kg, 4.2 m ³

Hydrogen – Fuel Cell

Overview

Hydrogen is used to generate electricity through an electrochemical process in a fuel cell. The electricity drives an electric motor and the only waste output is water. Fuel cells can be retrofitted to battery electric vehicles. There are a small number of OEM hydrogen fuel cell cars available in the UK but currently no OEM commercial vehicles.

Benefits

Hydrogen fuel cell vehicles do not negatively impact air quality because they produce only water as a waste product. They usually have a longer range than current battery electric vehicles but that is changing as battery technology improves.

Drawbacks

Fuel cell technology is expensive and there is a limited number of hydrogen refuelling stations in the UK. The production, storage and transportation of hydrogen is difficult, and can have substantial environmental impacts including the production of greenhouse gases.

Performance

Hydrogen fuel cell vehicles are powered by generating electricity which drives a motor. Hydrogen vehicles have a typical range of 180-200 miles which is limited by the size and weight of the storage tank. Their use is currently restricted by the lack of refuelling stations.

Misconceptions

Explosion risk, range and lack of refuelling stations are common worries. If used and stored correctly hydrogen poses no greater risk than conventional flammable fuels. Refuelling infrastructure is a bigger problem as refuelling stations are expensive to setup.

Typical model(s)

Make:	Renault
Model:	HyKangoo ZE Maxi
Load capacity:	550 kg, 4.5 m ³

Hydrogen – Diesel ICE Hybrid

Overview

If you burn hydrogen (H₂) you get water (H₂O). It is possible to construct a dedicated hydrogen powered internal combustion engine. However, the ICE engine is not very efficient when run on hydrogen and the vehicle's range is limited by the size of the hydrogen storage tank. A viable alternative is a hydrogen-diesel hybrid and there are companies who offer dual fuel conversions.

Benefits

The hydrogen-diesel hybrid replaces up to 40% of the diesel fuel with hydrogen. This will reduce tailpipe carbon emissions and potentially reduce toxic emissions compared to the diesel engine.

Drawbacks

Refuelling infrastructure is very limited and fuel cells are a more efficient way of extracting the energy from hydrogen. Depending on how it is made the hydrogen can be associated with significant carbon emissions or significant consumption of electricity which can have a carbon impact.

Performance

There are no known performance issues with hydrogen-diesel hybrid vehicles.

Misconceptions

Explosion risk, range and lack of refuelling stations are common worries. If used and stored correctly hydrogen poses no greater risk than conventional flammable fuels. Refuelling infrastructure is a bigger problem as refuelling stations are expensive to setup.

Typical model(s)

Make:	ULEMCo/Ford
Model:	Retrofit Diesel Hydrogen Hybrid Transit

Liquefied Natural Gas (LNG)

Overview

Liquefied Natural Gas (LNG) vehicles have achieved steady growth in recent years and are already very popular in Europe. At least three major truck manufacturers already offer, or plan to offer, gas-powered vehicles. Retrofit conversions are also possible.

Benefits

The vehicles are quieter and can emit fewer pollutants than diesels, though the move to Euro VI has narrowed this advantage. They can also offer reduced fuel costs.

Drawbacks

The vehicles are less efficient than diesels and LNG is a fossil fuel so its use affects climate change and offers limited environmental benefits. The availability of gas refuelling stations is limited, but improving. A dedicated LNG engine does not require complex exhaust systems to remove pollutants and so you do not need to buy AdBlue for use in the catalyst.

Retrofit hybrid diesel-gas conversions can suffer from 'methane slip', resulting in unburnt methane which is a powerful greenhouse gas, however companies are working to fix this.

Performance

LNG vehicles are well suited to long distance driving, with a range of up to 500 miles, depending on the number of gas cylinders. They operate well in any driving environment, with a similar performance to diesels.

Misconceptions

Misconceptions include concerns about safety. However, LNG tanks are very sturdy and will withstand an impact better than a conventional diesel fuel tank.

Typical model(s)

Make:	Iveco
Model:	Stralis
Load capacity:	Same as diesel equivalent

Compressed Natural Gas (CNG)

Overview

Compressed Natural Gas (CNG) vehicles use mains gas and can be refuelled from an on-site refuelling facility if the local gas network can supply the required pressure. CNG is stored on the vehicle in pressurised cylinders and used in a spark ignition engine. CNG is a fossil fuel but biomethane is available which is a renewable and sustainable version. Biomethane is produced from organic waste and injected into the national gas grid in the same volume that you are drawing methane from the grid.

Benefits

Gas engines are quieter and emit fewer pollutants than diesels, particularly older ones (Euro V and earlier) and load space is not affected. CNG vehicles offer some air quality benefits, they are quiet and emit similar levels of CO₂ to diesel vehicles. If operated on biomethane, fuel life cycle CO₂ savings of over 60% are achievable. A dedicated CNG engine does not require complex exhaust systems to remove pollutants and so you do not need to buy AdBlue for use in the catalyst.

Drawbacks

CNG engines are currently less efficient than diesels and CNG is a fossil fuel so its use affects climate change and offers limited environmental benefits if biomethane isn't used. Payload is often reduced by about 10% due to the weight of the gas tanks. The availability of gas refuelling stations is limited, but improving.

Performance

CNG vehicles can undertake similar duties to regular diesel vehicles. The number of gas cylinders impacts on their range and their load capacity and so they are especially suited to local collection rounds such as refuse collection where distances are comparatively short, the number of cylinders needed is less, and the vehicles return to base every day where they can be refuelled.

Misconceptions

Misconceptions include concerns about safety. However, CNG tanks are very sturdy and will withstand an impact better than a conventional diesel fuel tank.

Typical model(s)

Make:	Volvo
Model:	FE CNG
Load capacity:	Same as diesel equivalent

Biodiesel

Overview

Biodiesel can be a sustainable and renewable source of energy if it is made using waste products such as vegetable oils and fats. First generation biofuels which involved growing crops to produce fuel should not be used. LoCITY only supports biodiesel made from waste products, such as used cooking oil. Fuel suppliers can blend biodiesel into regular diesel up to seven per cent, known as B7, and that is compatible with any vehicle. Higher blends such as B20 and B30 are widely available and can be used in most engines requiring no modifications. Hydrotreated Vegetable Oil (HVO) can be used in blends up to 100%. Always contact your vehicle manufacturer before using a high blend biofuel.

Benefits

Biodiesel vehicles typically emit similar levels of pollutant emissions to diesel. As biodiesel is a renewable fuel, fuel life-cycle CO₂ reductions of around 15 per cent and 28 per cent are achievable when using B20 and B30 blends manufactured from used cooking oil. Switching to B20 and B30 compares favourably as a cost-effective CO₂ reduction measure with other fuels due to its compatibility with most engines.

Drawbacks

A vehicle's fuel delivery system must be designed to work with biodiesel and manufacturers will recommend more frequent maintenance. Stronger blends can be used without engine modification but a manufacturer warranty may not cover stronger biodiesel blends. Contact your manufacturer first before trialling biodiesel. There are no publicly available biodiesel refuelling stations so you will need your own storage tanks. Using biodiesel may result in reductions in carbon emissions but it will not significantly address poor air quality.

Performance

Biodiesel vehicles have a similar range and performance as diesel.

Misconceptions

Biodiesel, like hydrogen and many other fuels, can come from a variety of sources, not all of them fully sustainable. Waste-derived bio-diesel, such as that manufactured from used cooking oil, is fully sustainable, has a very low environmental impact and does not require additional food crops to be grown to produce it. It is considered an important transitional fuel to low emission transport.

Typical model(s)

Load capacity: Same as diesel equivalent



8 Appendix: Glossary of Terms

Air pollution	A mixture of gases and particles that have been emitted into the atmosphere by man-made processes and which have negative impacts on human health and the natural environment.
BEV	Battery Electric Vehicle: a vehicle powered entirely by electricity stored in a battery.
CO₂	Carbon Dioxide: Principal greenhouse gas related to climate change.
CNG	Compressed Natural Gas: Methane derived from fossil fuel sources, stored at high pressure and used to power spark ignition and compression ignition engines.
DfT	Department for Transport: Central government department responsible for transport in England and Wales.
Driver CPC	Driver Certificate of Professional Competence: A qualification for professional bus, coach and lorry drivers.
DVLA	Driver and Vehicle Licensing Agency: Organisation of UK government responsible for keeping a database of drivers and vehicles.
Emission	Direct release of a pollutant into the atmosphere.
Euro Standards	Standards for emission regulations adopted as part of the EU framework for the type approval of cars, vans trucks, buses and coaches. Current standards are: for light duty vehicles (cars and vans) Euro 6, for heavy goods vehicles Euro VI.
FORS	Fleet Operator Recognition Scheme: A fleet accreditation scheme, which promotes best practice amongst freight and fleet operators.
Greenhouse Gas	Gases that absorb heat and radiate it back to the earth's surface, contributing to climate change. The most significant of which are CO ₂ and methane CH ₄ .
HGV	Heavy Goods Vehicle: Large commercial vehicle with a gross combination weight of over 3,500 kilograms.
ICE	Internal Combustion Engine: usually diesel or petrol but can be natural gas (methane).
LEZ	Low Emission Zone: for example, the charging zone across Greater London for vehicles that do not meet emissions standards for Particulate Matter.
LoCITY	Programme to lower emissions from commercial vehicles.
LPG	Liquid Petroleum Gas: Also referred to as propane or butane, flammable mixtures of hydrocarbon gases used as fuel.

NO_x	Nitrogen Oxides: A generic term for Nitrogen Dioxide (NO ₂) and Nitrogen Monoxide (NO), which can form NO _x in the atmosphere. Euro standards set limits for vehicle emissions of NO _x .
NO₂	Nitrogen Dioxide: A gas formed by combustion, identified as an air pollutant harmful to human health. The European limit values measure concentrations of NO ₂ in the air.
OEM	Original Equipment Manufacturer: the company that manufactured the vehicle, for example Ford, Toyota, Scania, Volvo.
OLEV	Office for Low Emission Vehicles: Cross governmental office set-up to support the development of the low emission vehicle sector.
Particulate filter	An exhaust filter that traps Particulate Matter.
PHEV	Plug-in Hybrid Electric Vehicle: Can store some electricity in a battery for electric only mode but also has a petrol or diesel engine which can directly power the vehicle.
PM	Particulate Matter: A mixture of various solid and liquid particles of various chemical compositions suspended in the air.
PM₁₀	Particulate Matter <10 microns in diameter: Particulate Matter that is harmful to human health and subject to EU limit values.
PM_{2.5}	Particulate matter <2.5 microns in diameter: The smallest and most harmful form of Particulate matter. Also subject to EU limit values.
TfL	Transport for London: An executive body of the Greater London Authority (GLA) responsible for the public transport system in London.
TLRN	Transport for London Road Network: A network of 580km of roads within Greater London for which TfL has highway authority powers.
Van	Light commercial vehicle with a gross weight up to 3,500 kilograms.
VED	Vehicle Excise Duty: Annual charge levied for vehicles to use the public highway. Banded according to engine size or CO ₂ emissions.
ULEZ	Ultra Low Emission Zone: A package of measures in central London, including new standard for TfL buses, Taxis, Private Hire Vehicles and a proposed charging zone for all other types of vehicles within central London for vehicles that do not meet set emission standards.



9 Appendix: Environmental Fleet Management Policy

9.1 Purpose

This policy ensures that the negative impacts of fleet activities on the environment are minimised and associated costs reduced. The policy should be used to make staff aware of the environmental and financial impacts of their actions.

9.2 Scope

This policy applies to all staff involved in managing, administering or driving vehicles. Our Fuel and Emissions Champion will be responsible for communicating and implementing the policy.

9.3 Policy statement

Our vehicle fleet is essential to our core business. The focus of our environmental commitment is the impact of our vehicles on air quality and climate change. We are committed to reducing emissions to minimise our impact on the environment. We will achieve this by working collaboratively with our staff, customers, suppliers and relevant public authorities.

Reducing our impact on the environment is part of our commitment to being a responsible and successful organisation. We want to protect the environment and the health of the public, many of whom will also be our customers.

Fuel accounts for a significant percentage of our operational running costs. Improving fuel efficiency is important for the continued success of our business.



Everyone has a role to play and all staff should be clear about their individual responsibilities regarding this policy. These include:

- Complying with, and exceeding where possible, any environmental regulations and standards to which we subscribe
- Setting environmental goals, using baseline data and establishing performance management
- Minimising waste by evaluating operations and ensuring optimal performance, efficient journey planning and eliminating unnecessary engine idling
- Monitoring environmental performance through a range of data monitoring tools including telematics and fuel card reports
- Striving for continual improvement throughout our operation by reviewing industry best operating practice and fuel choice
- Producing an annual fleet performance report to provide evidence of progress in environmental performance and areas for improvement

This policy is a 'living' document and as such will be updated on an annual basis. Our designated Fuel and Emissions Champion is the person responsible for the maintenance of this policy, its communication and implementation.

9.4 Roles and Responsibilities

Senior managers must ensure that:

- The Environmental Fleet Management Policy is effectively communicated across the organisation and available for all staff to review
- A performance management system is established for environmental and fuel efficiency using the most appropriate performance indicators and measures
- Performance measures are realistic and do not impact an individual's ability to carry out their work without risk to themselves or others
- Operational, management and driving staff are resourced, trained and empowered to conduct their roles and responsibilities with regard to this policy
- Driver incentives, such as driver league tables and fuel efficiency bonus schemes, are considered, trialled and monitored for effectiveness
- Any related policies, systems or procedures are consistent with the policy
- The roles and responsibilities of the Fuel and Emissions Champion are assigned to a competent person within the organisation

Fleet Managers must ensure that:

- They are familiar with the Environmental Fleet Management Policy and the policy is fully implemented across the organisation
- All transport staff and drivers are aware of their individual duties and responsibilities as outlined in the policy
- Any deviation from the policy is justified and documented for approval by senior management
- All fleet performance management data is collected, monitored, analysed and reported to senior management
- A driver development programme is in place and agency staff are made aware of the policy
- The driver handbook is updated to be consistent with the policy and include current best practice for fuel efficient driving

The Fuel and Emissions Champion must ensure that:

- The Environmental Fleet Management Policy, procedures and responsibilities are effectively communicated across the organisation
- Environmental performance monitoring processes and data collection on fuel usage, tyres and general wear and tear are established
- Fuel usage and fleet performance activity reports are monitored and analysed to identify trends
- Periodic environmental and fuel usage reports are prepared to inform senior management team decision making
- Performance analysis is conducted to identify driver development needs
- Campaigns, driver training and other safety interventions are developed, communicated and evaluated
- The driver handbook is updated to be consistent with the policy and contains the current best practice for fuel efficient driving

Driving staff must ensure that:

- A thorough vehicle walk around check is carried out before, during and at the end of the driver's shift, paying attention to wheel alignment and tyre pressures
- Loads are distributed and sheeted correctly to reduce wind resistance and any unnecessary weight is removed from the vehicle
- Journeys are efficiently planned to reduce wasted miles
- Fuel efficient driving techniques as outlined in the Driver Handbook are used, including the five themes:



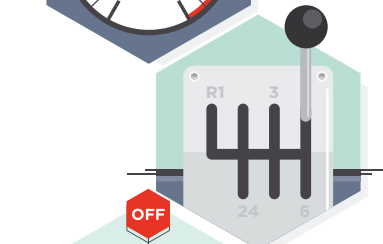
Get set: Check your vehicle and prepare for your journey



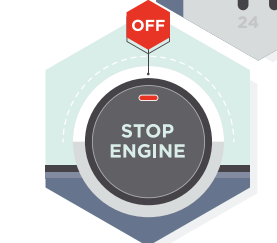
Think ahead: Observe, anticipate and think ahead to apply fuel efficient driving techniques



Smooth ride: The more you brake the more you accelerate



Get in gear: Use your gears wisely to maintain an efficient engine speed



Power off: Idling gets you nowhere so switch off when stationary

- The vehicle's air conditioning is not used unnecessarily
- The fleet manager is informed immediately of any circumstance that may affect the performance and or operation of the vehicle
- They are aware that remedial action, including driving assessments and additional training, may be required if reasonable performance measures are not being met

Fuel and Emissions Champion

To further demonstrate our commitment to the Environmental Fleet Management Policy, we have appointed a Fuel and Emissions Champion to provide a single point of contact for fuel and emissions management across the organisation. Details of our Fuel and Emissions Champion are:

Name:	
Title:	
Department:	
Contact number:	

Policy history

Version	Dated	Summary of revisions

Policy history

Name:	
Title:	
Date:	
Signature:	



10 Appendix: Driver Handbook

Your driver handbook should set out the specific environmental and fuel efficiency actions you want your drivers to complete. It should also outline the financial and health benefits to drivers to ensure they are fully motivated to achieve your goals.

Use the specimen driver handbook inserts to either add to your organisation's driver handbook or to review your existing content.

10.1 Specimen insert for your driver handbook

Fuel efficient driving

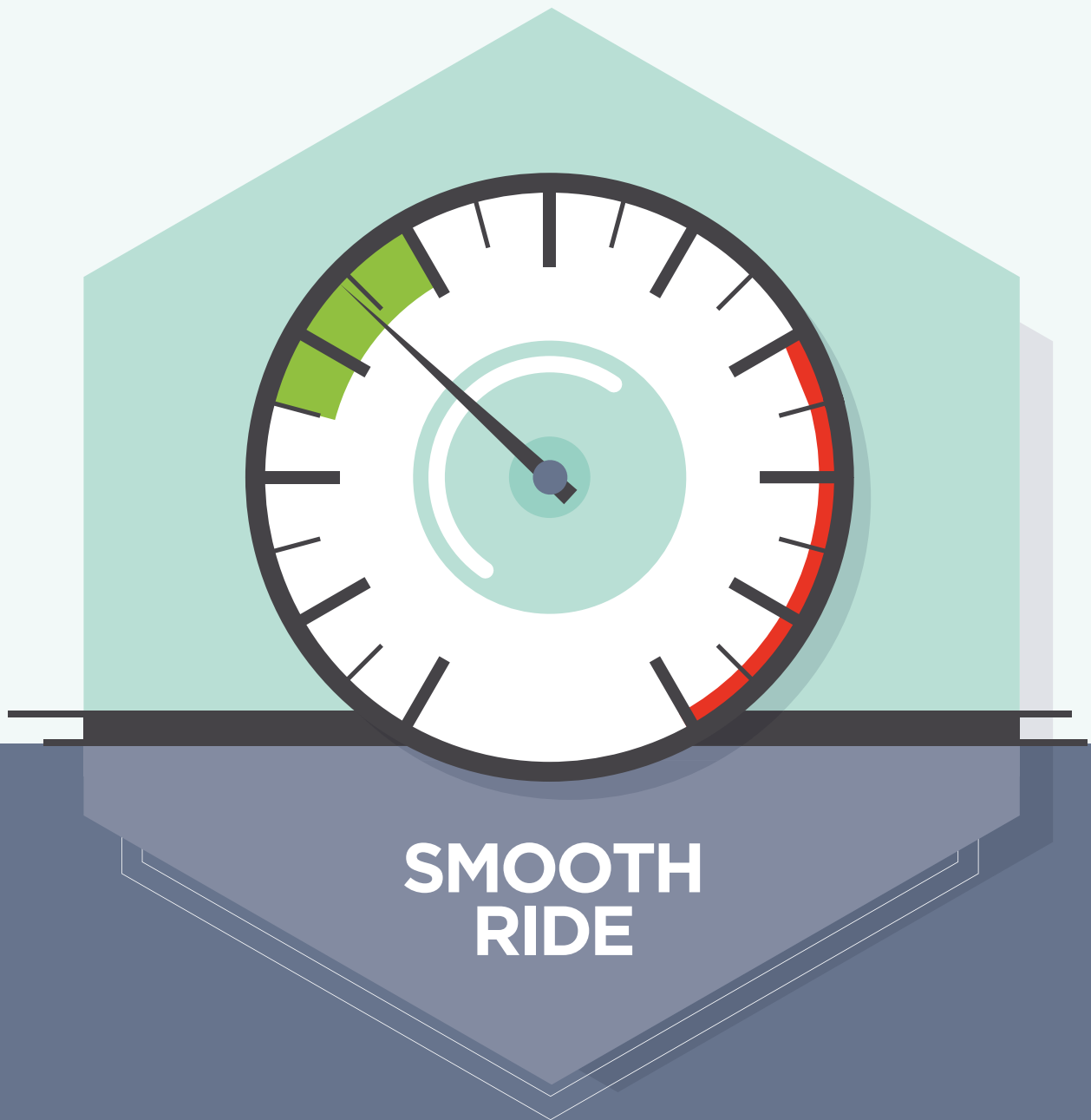
Fuel efficient driving involves applying professional driving techniques that reduce running costs such as fuel, maintenance and tyres. This in turn improves performance and minimises your impact on the environment. You can apply the techniques in your personal life and they may also save you money and improve your health.





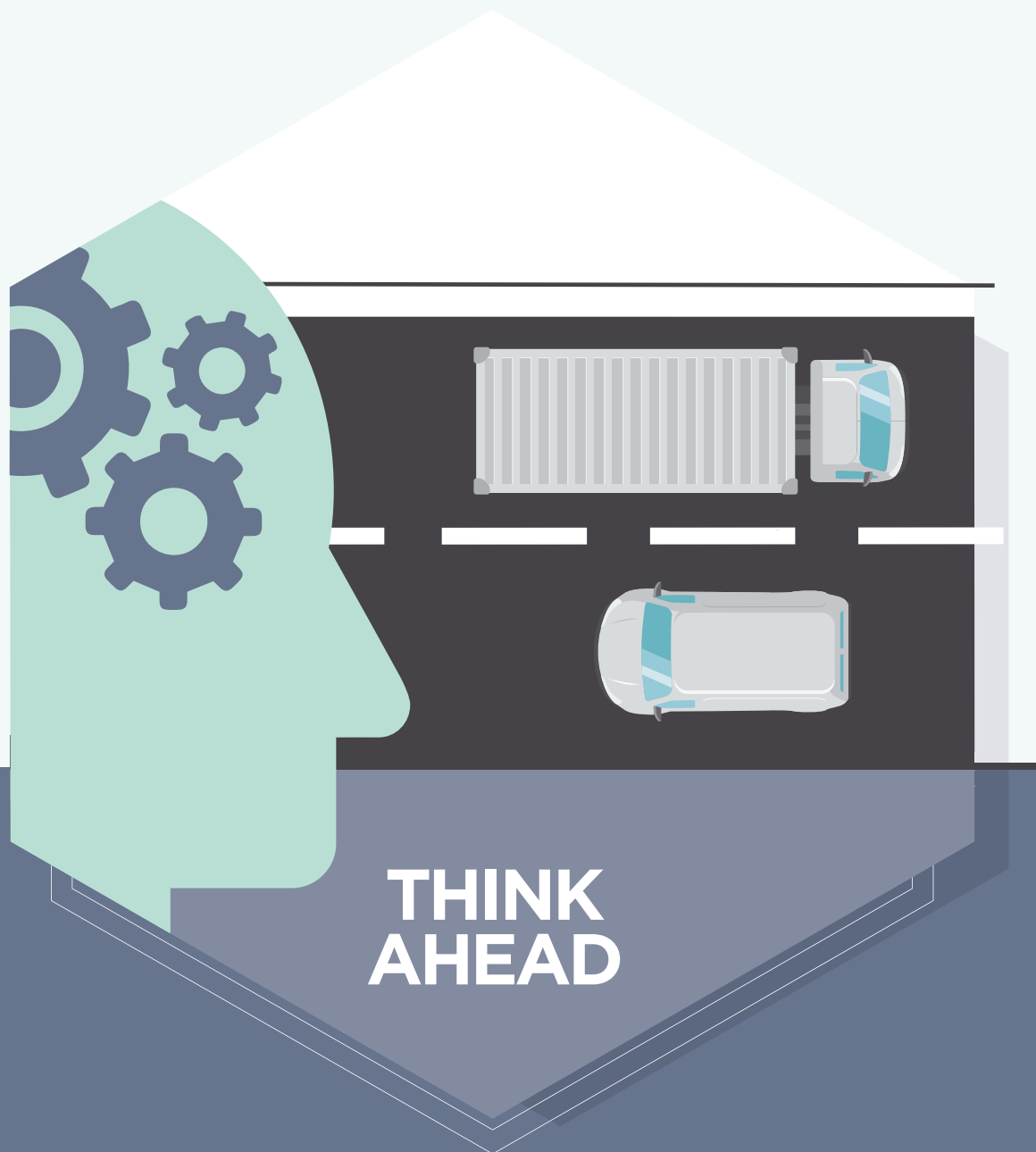
Checking your vehicle and preparing for your journey can make a significant difference to how fuel efficient your trip will be. Before you set off you should:

- Conduct a systematic vehicle walk around check
- Pay particular attention to tyre pressures and wheel alignment
- Report any faults using the vehicle defect form
- Distribute and sheet your load correctly to reduce wind resistance
- Avoid any unnecessary weight on the vehicle
- Plan your journey to ensure you don't drive wasted miles



Fuel efficient driving techniques are generally common sense. This means observing, anticipating and thinking ahead to minimise the need for doing anything unnecessary or too sudden. A good driver will:

- **Observe and plan ahead.** Keep the vehicle moving and use momentum to save fuel
- **Anticipate situations and other road users.** Read the road as far ahead as possible to avoid unnecessary braking and acceleration
- **Accelerate slowly.** Maintain as constant a speed as possible and increase speed gradually
- **Use the engine.** When slowing down or driving downhill, take your foot off the accelerator whilst in gear to initiate engine braking
- **Avoid excessive speed.** Driving at high speed greatly increases fuel consumption
- **Keep a safe distance.** Don't tailgate and maintain a distance from the vehicle in front so that you can regulate your speed without using the brakes



Fuel efficient driving isn't about driving slowly, it's about driving smoothly so that overall journey times are not increased, assuming, of course, speed limits are obeyed. It takes a lot of power and energy to get your vehicle moving, so don't waste that energy through excessive use of the brakes.

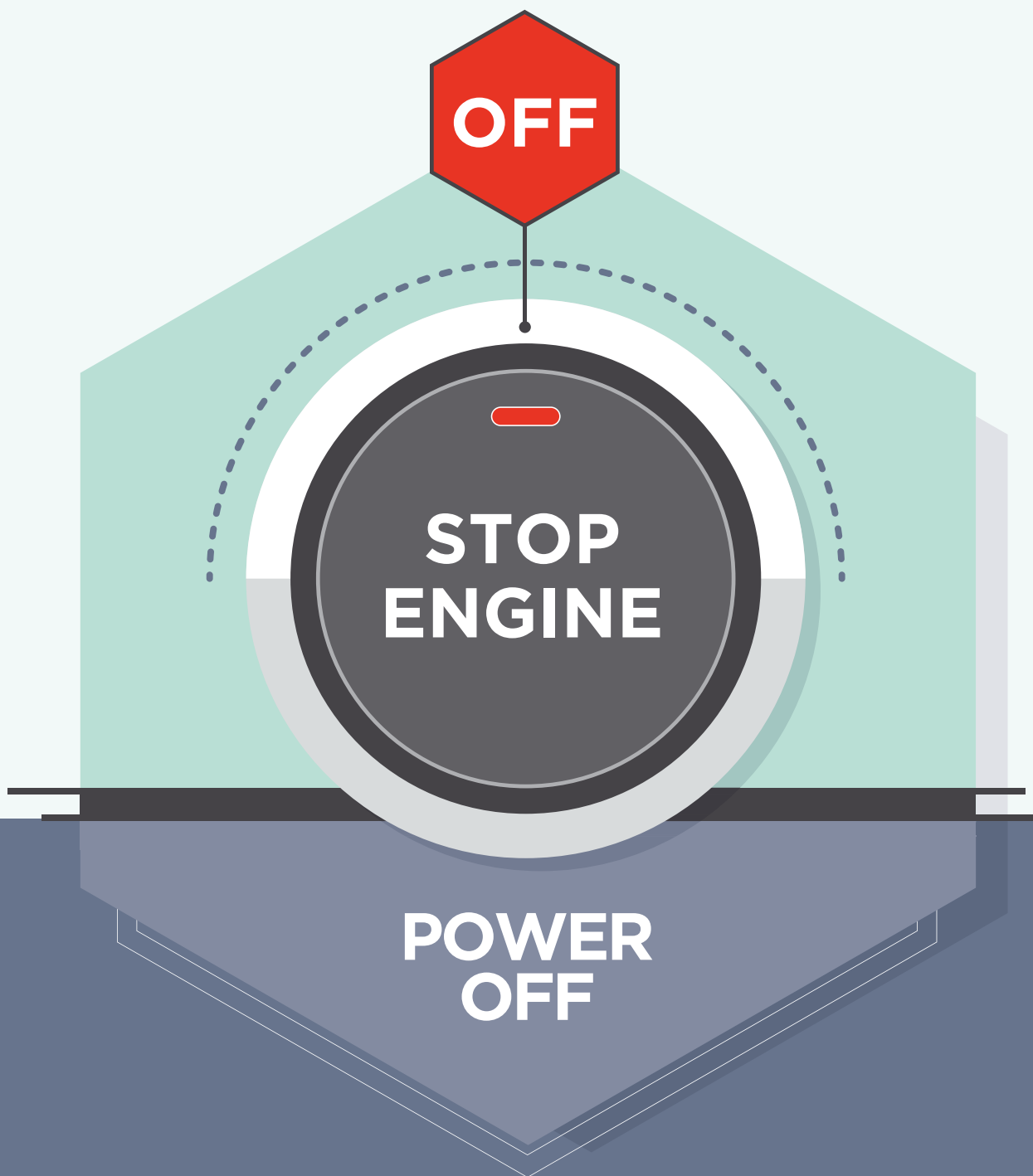
Points to note: The footbrake is the most inefficient vehicle component; each time you use it valuable energy and momentum is wasted. Smooth braking will save fuel and reduce stress on both you and the vehicle. Harsh braking causes inconsistent speed and increases the need to continuously change gear.

The more you use the footbrake, the more you will need to use the accelerator. Drive smoothly by anticipating other road users and situations to avoid unnecessary braking and acceleration.



To maintain the most efficient engine speed you need to use your gears wisely. Always consider:

- **Gear selection.** When accelerating shift up early and keep the engine speed in the green
- **Higher gear lower rev.** Selecting higher gears optimises fuel usage but don't let the engine labour
- **Stay in the green zone.** Use the rev counter and keep your engine speed at its most optimum for fuel economy
- **Block changing.** Skip a gear and keep gear changes to a minimum. Block changing up can help improve fuel efficiency
- **Controlling the clutch.** Double declutching is not necessary on modern vehicles. It wastes fuel and can increase wear and tear



You are in charge of your vehicle, therefore you are responsible for your levels of engine idling. Idling gets you nowhere so make sure you switch off the engine:

- During loading and unloading
- When you are parked up
- When you're on a break
- When you are stuck in stationary traffic
- When the vehicle is to be unattended
- If you anticipate being stationary for more than one minute, then switch off your engine as soon as you are stopped

11 Appendix: LoCITY Driving Training Objectives

Training objective	Learning outcomes
Fuel consumption and air quality	<ul style="list-style-type: none"> • Explain the scale of the air quality and climate change issues that are challenging cities • Describe measures taken by cities to improve air quality including Low Emission Zones and London's Ultra-Low Emission Zone • List the road transport programmes aiming to reduce emissions from buses, taxis and private hire vehicles • Explain the relative contribution that commercial vehicles make to poor air quality, in relation to other vehicle types • List the principal emissions from the tailpipe and other sources (e.g. brakes, tyres and ancillary equipment) • Describe the links between fuel consumption, driver behaviour and financial, environmental and social costs • Explain the business viability, job security, cost of living, and personal benefits of fuel efficient driving
Efficient journey planning	<ul style="list-style-type: none"> • Outline the fuel efficiency and journey time implications of congestion, road works and local restrictions • Apply Drivers' Hours and Working Time rules effectively to improve fuel efficiency and journey time • List and describe the information, tools and systems that can be used for effective journey planning • Plan a multi-stop route in the most fuel efficient way
Vehicle checks and maintenance	<ul style="list-style-type: none"> • Explain how proactive vehicle maintenance, fuel consumption and emissions are linked • Describe the role daily and weekly vehicle checks play in reducing fuel consumption and emissions • Explain the extent to which wheel alignment and tyre pressure impacts fuel consumption • Define good practice loading and describe the impact of unnecessary load and equipment
Fuel efficient driving techniques	<ul style="list-style-type: none"> • List the typical organisational policy requirements on pre-journey checks, efficient driving and anti-idling • Explain fuel efficient driving techniques such as anticipation and appropriate use of gears • Describe the impact of unnecessary engine idling and state when to switch off an engine and the benefits of doing so • Identify the primary dashboard warning lights associated with an increase in unnecessary emissions (e.g. DPF or tyre pressure systems) and take appropriate action

Training objective	Learning outcomes
The value of vehicle design and technology	<ul style="list-style-type: none">• Explain the role of Euro Standards in reducing emissions from commercial vehicles• List the types of in-vehicle technology products that are designed to optimise fuel efficiency• State the benefits of in-vehicle technology for drivers, operators and the wider environment• Explain how to make the best use of in-vehicle technology to improve driving skills• List other vehicle design features and retrofit technology that optimise fuel efficiency
Monitoring, measuring and managing driving performance	<ul style="list-style-type: none">• List the methods as to how a fleet operator typically monitors, measures and analyses driver performance• Outline how to best use in-vehicle technology and other methods to provide accurate data and feedback on driving performance• Identify typical incentives that fleet operators use to encourage and reward efficient driving performance• List the ways an organisation can give you feedback on driving and help improve performance
Alternative fuels and their use in commercial vehicle fleets	<ul style="list-style-type: none">• List the main fuels and technologies that are expected to displace use of petrol and diesel engines• Outline the definition and overview for each alternative fuels and their benefits for drivers, operators and society• Explain the benefits and limitations of alternative fuels with regard to performance, cost and fuel availability• Describe the barriers to move from conventional vehicles to more sustainable cleaner fuelled vehicles





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