A LEN can also affect the decisions that people who live and work in the area make. This can include businesses using procurement or travel planning to reduce emissions from deliveries or staff transport, community engagement on air quality issues, community travel planning, and working with schools.

Seeking to cut vehicle use and associated emissions by, for example, better coordination and consolidation of delivery and servicing and encouraging walking, cycling and public transport trips, has become an important part of the LEN concept. It requires significant planning, support and enthusiasm to implement. LENs will require continuing active support to achieve behaviour change following the introduction of any physical measures. Therefore a long-term plan should be put in place to ensure that the benefits of the LEN are maintained and enhanced after it is completed, through the continuous local engagement, maintenance and support.

Many types of measures will be universal and applicable to all types of roads, but may be carried out in different ways or to a different extent. For example, traffic management can reduce emissions in all cases, but the most effective type of traffic management may vary between road types and locations. The Roads Task Force Streets Type Matrix can help in choosing appropriate measures for each LEN.

Suggested interventions that should be considered for a LEN are outlined in the next section of this document.

The most effective measures will vary between LENs depending on the local area, such as the proportion of different activities, eg retail, industrial, offices and residential, and the types of roads and traffic in the area.

Neighbourhood commitments
Neighbourhood areas would need to commit to traffic management/restriction and behaviour change programmes which could include the following measures, subject to feasibility:

Traffic management: Introducing measures to remove through-traffic from roads. These could include filtered permeability schemes, timed road closures to all motorised traffic and permitted vehicle-only roads that restrict access to residents and vehicles for loading and servicing only. These measures could be put in place initially on a trial basis, using temporary barriers, and the impact on emissions could be monitored.

Parking management: Introducing smarter parking charging. This could include introducing a variable charge for residential permits according to emissions, with surcharges for older more polluting diesel vehicles. On-street parking charges could also vary according to vehicle emissions, with banding based on Euro standards. There is also potential to vary charging according to parking demand, using on-street sensors.

Localised Low Emission Zone: A voluntary agreement that businesses and key trip generators in the area will ensure all their vehicles meet the ULEZ standards (or higher for LENs within the ULEZ).

Freight and servicing: Introducing measures to reduce the impact of freight and servicing in the neighbourhood. This could include the following:

- **Freight planning**: A neighbourhood-wide delivery and servicing plan to cut overall freight movements and emissions. This would enable both a reduction in the individual freight and servicing requirements for each premise and allow for consolidation of deliveries across multiple premises. As part of this, premises could sign up to a neighbourhood-wide green procurement code, ensuring suppliers use best practice and low emission vehicles

- **Priority loading**: This would include either the implementation of a booking system for delivery and servicing trips, or provision of restricted loading bays

- **Restricted loading bays:** Exclusive use would be given to low or zero-emission commercial vehicles, or vehicles undertaking consolidated deliveries serving a number of premises

- **Delivery booking system:** This would allow a reduction in overall capacity for loading and servicing by encouraging the most efficient use of the remaining capacity. Priority booking could be given to low-emission vehicles or consolidated delivery vehicles to encourage uptake. Parking sensors could be used to monitor and enforce the use of these and support and/or guidance could be provided to freight operators to ensure this resulted in more efficient deliveries

- **Microconsolidation**: Introducing microconsolidation would greatly benefit low emission neighbourhoods. Use of electric vehicles or cycle freight for the last leg of the journey would enable zero-emission restrictions to be introduced while allowing for freight deliveries. Monitoring to ensure that there are overall benefits to consolidation and that emissions are not simply displaced will need to be undertaken

Travel planning: Engagement with employers and schools within a LEN is important to its success. Targeted travel planning, with a focus on reducing emissions, can help educate and engage the community as well as influencing behaviour.

Lack of awareness around air pollution and its causes can impact upon travel behaviour and supporting measures to help people travel more sustainably can help improve local support and buy in to the LEN concept. As part of this it is important that programmes are properly monitored and maintained to ensure their effectiveness.

Local authority commitments
To support a LEN, it is vital that the local authority provides infrastructure, financial support (including securing private investment) and guidance to ensure that there are wider benefits to a LEN. The local authorities should consider the following actions:

Walking, cycling and urban realm improvements: LENs would often involve changes to highway infrastructure to improve conditions for walking and cycling. The traffic management measures mentioned previously will contribute to this, but improvements to the urban realm will bring additional benefits to the local economy and encourage local support for LENs.

Infrastructure for low-emission vehicles: Infrastructure to support the uptake of electric vehicles, particularly freight vehicles and taxis would be required for a LEN. Wireless charging plates or rapid chargers could be installed in the priority loading bays to further support the use of electric freight vehicles.

Where a LEN includes a residential area, residential charging points and electric car club bays should be provided.

Taxi ranks: Where there are significant taxi movements in a proposed LEN, it could include a taxi rank to reduce the need for empty running while plying for hire. This could be combined with rapid charging or inductive charging to support the uptake of new zero-emission capable taxis.

Geofencing: Where an area has implemented LEN measures, it may be possible to support this through use of geofencing technology. The idea is to use GPS technology to switch hybrid vehicles (potentially including taxis, buses and cars) into electric mode, however, this technology is still subject to development and feasibility work for its application for public transport. Prioritising LEN areas for the implementation of geofencing would enhance potential emissions reduction benefits in a LEN.

Building emissions: Providing additional funding for retrofitting of buildings and boilers within a LEN would bring more benefits and provide further incentives for an area to become a LEN.

Green infrastructure: Green infrastructure, such as green walls, pop-up parks or photo catalytic materials could be installed to complement a LEN. These can have benefits, such as enhancing the urban realm, reducing the urban heat island effect (where urban landscapes can amplify summer night-time temperatures,), a small impact on air quality, and raising awareness as part of a package of measures.

Travel planning: Development, support and guidance to establish area-wide travel and delivery and servicing plan frameworks to maximise the coordination and efficiency of the road network and reduce motorised travel demand as far as possible.

7. Monitoring

A strong strategy to measure and monitor the impacts of the LEN measures is crucial to building the case for more LENs. In addition to the use of air quality monitors, robust before and after data collection and modelling of the impact of the measures on vehicle speeds, kilometres and fleet composition will be needed to evaluate which LEN measures have proved effective and provide valuable lessons learnt for future projects.

Monitoring the popularity of the LEN measures and the impact on the local economy is also important to ensure that LENs have local support and buy-in. It is vital they are viewed as a positive contribution to the area rather than an imposition.

Dedicated surveys should be carried out to establish a baseline and allow modelling of interventions. However, TfL has some data available that can be used to make high-level assessments.

Post-implementation monitoring should also be undertaken to ensure that benefits are realised and feed information into future LEN proposals.

As well as traffic data, the following should be collected to develop a robust view on additional benefits:

- Healthy streets indicator surveys
- Collision statistics for roads within the LEN
- PERS surveys
- Numbers of pedestrians and cyclists
- Rateable property values
- Residential property values

Modelling emissions benefits
For physical changes to road space:

- Traffic modelling in line with TfL Traffic Model Auditing Process TMAP
- Use of TfL Emissions Assessment Tool to convert traffic flow and composition changes into emissions changes

For complementary/softer measures:

- Identify which trip and vehicle types will be affected and express as a proportion of total traffic in the area
- Identify what the impact will be – ie reduction in trips or change in vehicle type
- Identify the likely uptake of measures – assumptions can be made based on previous case studies and whether measures are compulsory or voluntary
- From this a likely percentage reduction in emissions for each measure can be determined
- Apply this to LAEI emission figures to give a total impact on NOx, PM and CO_2
- TfL is developing an assessment tool to assist with this

Measuring other benefits

- TfL's Valuing Urban Realm Toolkit can be used to measure and monetise other benefits to a LEN. The toolkit requires the following data, some of which may be held by TfL planning. Planning departments for individual boroughs may also hold this data:
    - The number of current and projected pedestrians (moving and static) within each link and space
    - PERS ratings (pre- and post-improvement)

- The Health Economic Assessment Tool can also be used to measure health benefits of increased walking and cycling
- A qualitative assessment against the Mayor's Transport Strategy using the Strategic Assessment Framework should be carried out. While a positive benefit to cost ratio is a factor, the overall strategic case for the project should be the more important factor, in line with best practice around appraisals. The TfL business case development manual can provide further guidance in capturing costs and benefits and drawing up the strategic case

OVE ARUP & PARTNERS LTD'S QUALITY TENDER SUBMISSION

Transport for London

Silvertown Neighbourhood Enhancement Scheme (tfl_scp_001143_co005)

Quality Submission A

Final | 25 January 2017

Job number 71756/04

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Document Verification

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Contents

1 Scene Setting

Silvertown Tunnel creates a new river crossing in London but one of the concerns of the local community is that traffic levels will increase, traffic patterns will change and the project will result in a decrease in air quality in an area that already experiences high concentrations of air quality. In some parts of the area near to the proposed tunnel, traffic related emissions are responsible for over 80% of the NOx emissions in the area resulting in poor air quality near to roads. Transport for London (TfL), in accordance with its responsibility to reduce emissions from the transport sector in London is seeking to establish two Neighbourhood Enhancement Schemes, one in the Royal Docks in the London Borough of Newham, and one on the Greenwich Peninsula in the Royal Borough of Greenwich, to deliver local benefits to further mitigate impacts of the scheme on local residents and businesses.

Ove Arup and Partners Ltd (Arup) is pleased to respond to this invitation to tender as we can provide TfL with a team comprising leading experts in transport and air quality issues in London together with expertise in health, community assessment, planning and green infrastructure. Arup has carried out several self-funded research projects in related areas examining interventions that are designed to improve air quality and we can improve the biodiversity of the urban environment. Recent work has included development of modelling techniques to assess how vegetation can remove fine particulate matter from the atmosphere and we are currently undertaking air quality monitoring on a green wall in London.

The project will be led by Dr [redacted] – the director of Arup's environmental consultancy business and also an air quality expert with over 30 years of experience and having led previous research projects regarding traffic management and air quality. He will be supported by a team consisting of leading experts in air quality, community, transport, health, logistics and urban greening. We will work closely with the client and the local community to develop effective measures and provide successful NEAs for the project.

Confirmation: this tender is complaint and the relevant insurance policies will be in force as documented in the framework Terms and Conditions.

2 Capability and Experience