

The City of Edinburgh Council - Promoter



## EDINBURGH TRAM NETWORK

# EDINBURGH TRAM (LINE ONE) BILL

## Environmental Statement - Non-Technical Summary

### SCOTTISH PARLIAMENT - SESSION 2



# tramtime

on route to a 21st century travel system

## EDINBURGH TRAM LINE ONE

### ENVIRONMENTAL STATEMENT NON-TECHNICAL SUMMARY

#### 1. Introduction

This document is the Non-Technical Summary of the Environmental Statement (ES) for the Edinburgh Tram Line One. The full ES was published in December 2003, to accompany the deposit of a private Bill before the Scottish Parliament seeking authority to build and operate Line One.

Edinburgh Tram Line One is a 15½ kilometre circular tram route serving central and north Edinburgh. It forms part of a network of three routes being promoted by the City of Edinburgh Council (CEC) through transport initiatives **edinburgh (tie)**, a company set up to deliver several major public transport schemes over the next 10 to 15 years.

The ES has been prepared for Line One in accordance with the standing orders of the Scottish Parliament and determinations by the Presiding Officer, which require that projects approved by private Act of Parliament must be subject to Environmental Impact Assessment (EIA). EIA in Scotland is governed by the Environmental Impact Assessment (Scotland) Regulations 1999 (S.I. 1999 No. 1). The information presented in the ES must be taken into account by Parliament in making its decision to authorise Line One. The ES must also be made available for comment by interested parties and any comments or representations they make must additionally be taken into account.

The Non-Technical Summary has been prepared for the non-specialist reader to assist in understanding the project and the main environmental issues associated with it. It provides a summary of the information presented in the full ES, in particular describing:

- the design of the project and the way it will be constructed and operated;
- its impacts on the physical, natural and human environment;
- the measures that will be undertaken to minimise these impacts.

The Non-Technical Summary is available as a separate document and is also bound into the front of the ES.

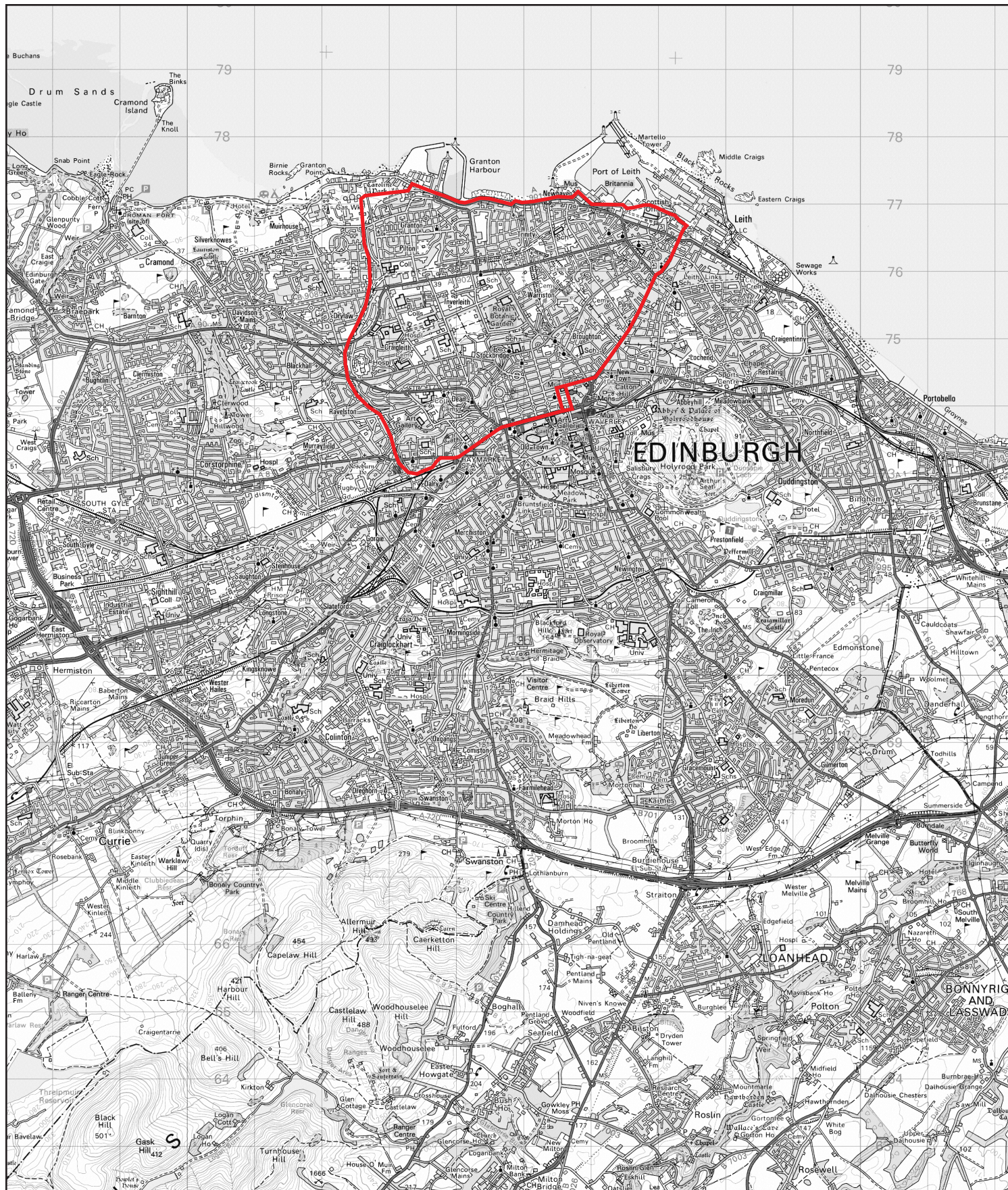
If you have received a copy of the summary and would like to see the full ES it is available for inspection or purchase from transport initiatives **edinburgh** at 91 Hanover Street, Edinburgh.

#### 2. The Project

Line One follows a 15½ kilometre circular route from Princes Street, west to Haymarket, then north along the disused Roseburn Railway Corridor to Granton, along the waterfront to Leith, and up Leith Walk to Picardy Place, York Place, and St Andrew Square to rejoin Princes Street. The alignment is shown on *Figure 1*.

The route will be a twin track served by modern trams running on rails and powered by electricity supplied via overhead cables. It will run on-street integrated with other traffic for 2.3 kilometres, on a dedicated public transport corridor along existing roads for 2.7 kilometres, and on a separate tramway





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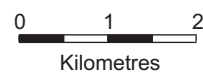


Route Alignment

# **Edinburgh Tram Line One Figure 1 Location Plan**



Scale





for 10.5 kilometres. Where the tram runs on-street it will run in the centre of the road in some locations and at the kerbside in others. The tram tracks will be laid into a special foundation with surfacing designed to integrate with the surrounding area. Overhead cables will be suspended either from buildings, or from columns located in the centre or at the edge of the road and integrated with other street furniture. Electrical substations will be located in above or underground structures at nine locations.

A fleet of 14 trams will be established. Selection of the vehicle will be the responsibility of the contractor or concessionaire appointed to implement the project, but at present it is expected that trams will be single vehicles with capacity for up to 230 people (80 seated) and a maximum operating speed of 80 kph. Up to 8 trams will run in each direction per hour from 5 am until midnight.

Passenger stops will be located at 22 points around the route. These will provide platforms offering level entry into the tram, shelters, seating and lighting and public information. All stops will be accessible to the disabled.

Development of the route will entail changes to several road junctions to accommodate the tram, with significant remodelling at Haymarket, Starbank and the foot and the top of Leith Walk. Cycle and pedestrian facilities will be maintained in all locations except on part of southern Constitution Street where pedestrians will be limited to the eastern side of the road. The cycleway and footpath along the Roseburn Railway Corridor will be reinstated and all access points maintained.

Minor works to various structures around the route will be required, for example to bridges along the Roseburn corridor, and a new walkway will be constructed over the seawall at Starbank Road to provide sufficient width for the tram and pedestrians. The walkway is proposed to be supported by columns located in the intertidal area below the wall. One building, the Caledonian Alehouse at Haymarket, a Category C(S) listed building, will be demolished.

A servicing depot will be located on a 3 hectare site at Leith Port.

The tram route will be constructed over a three year period, working in sequence through a series of sections of 100 – 200 metres in length at a rate of 1 to 3 metres a day. Within each section work will progress from initial enabling works (clearance, excavation, work to structures, installation of services), through laying of the foundations and track, to construction of stops, final surfacing and installation of overhead equipment.

### 3. The Objectives of Line One

As noted above Line One is being developed as part of a network of routes serving the main transport corridors in the city. This network is being promoted to provide a step change in the quality and capacity of public transport in Edinburgh, meeting the city's objectives for a transport system which:

- improves safety for all;
- reduces the environmental impact of travel
- supports the local economy;
- promotes health and fitness;
- reduces social exclusion;

- maximises streets as the focal point of our communities where people can meet, shop and, where appropriate, children can play.

Line One seeks to contribute to these objectives, in particular to development and relief of social exclusion in north Edinburgh, to improvements in accessibility through the centre and north of the city, and to environmental benefits through reduced traffic noise and pollution.

To help ensure that all these objectives are met transport initiatives **edinburgh** and the City of Edinburgh Council have undertaken to set up liaison groups with local communities during the further development and implementation of the proposals for each line.

#### 4. Consideration of Alternatives

The EIA Regulations require an ES to describe any alternative considered during the planning of a project and to explain the reasons for selection of the proposed scheme. Various options have been examined during the development of Line One and these are discussed in *Chapter 3* of the full ES. These include alternative loop alignments and more detailed alignment alternatives in specific locations at Haymarket, Telford Road, Easter Road and George Street. A number of possible engineering structures for the widened walkway at Starbank Road and alternative locations for the depot site were also considered.

All these options were appraised in terms of their impacts on environment, accessibility, integration, the economy and safety. For most options, no major differences on environmental grounds were identified and the preferred options were generally chosen on engineering, operational and economic grounds. The exception was in the choice between Princes Street and George Street, where townscape impact played a part in the decision to choose Princes Street as the preferred route. In addition, greater environmental impact was predicted along the Roseburn Railway Corridor between Craighleith and Ferry Road due to habitat loss, effects on protected species and potential noise impacts than for the alternative, selected, route along Telford Road.

#### 5. Relationship to Current Policy

There is a commitment to introduction of light rapid public transport (LRT) in Edinburgh in the statutory development plan, which comprises the Lothian Structure Plan and the relevant local plans covering the route of Line One. The local plans are the adopted Central Edinburgh Local Plan, the adopted North East Edinburgh Local Plan, the adopted North West Edinburgh Local Plan and the draft West Edinburgh Local Plan. Certain of these plans do, however, contain policies which raise issues associated with the proposals, including the potential for adverse impact on the historic townscape in Edinburgh and on areas designated for their nature conservation importance in the Firth of Forth and the Roseburn Railway Corridor. The development plan does reserve corridors covering part of the Line One route for LRT development, including the corridor from Roseburn to Telford Road. The proposals support transport objectives in the development plan by providing a convenient and efficient public transport service in Edinburgh.

The proposals for Line One are fully consistent with the Local Transport Strategy for Edinburgh, and with other relevant planning strategies and major development sites being promoted by the City of Edinburgh Council.

## 6. Assessment and Mitigation of Significant Impacts

### 6.1 Traffic and Transport

During construction of the tram Heavy Goods Vehicle (HGV) and light traffic will transport materials, equipment and staff to and from construction compounds and working areas. Although no significant traffic or traffic related environmental impacts are predicted from these movements, a reduction in amenity is predicted for residents and pedestrians and cyclists in the vicinity of the construction compounds identified for the purposes of the EIA. These include Constitution Street in Leith, New Street in the Old Town, Roseburn Terrace and Granton View/Crescent. These effects will be mitigated by the contractor through staggering of arrivals of HGVs, and agreement of HGV haul routes through Edinburgh and compliance with construction working hours with CEC.

Construction work will also result in disruption to traffic, public transport, property access and pedestrians and cyclists through necessary traffic management measures such as temporary traffic lights, road closures, and diversions. These will affect other road users including pedestrians and cyclists. The contractor will be required to maintain pedestrian thoroughfares at all times. The footway and cycleway along the Roseburn Railway Corridor is likely to be closed during construction and alternative routes will be identified and signed.

Operation of Line One will lead to changes to traffic flows by displacing traffic from on-street sections of the scheme, encouraging transfer from cars to trams and changing road and junction layouts in some areas. A traffic model has been used to predict the effects of the tram and significant increases and decreases in traffic are predicted for a number of roads around the route. The effects of traffic flow increases on other road users will be mitigated through the use of signing, maintenance of parking and servicing to properties alongside the tram, and traffic calming where appropriate. Where the tram passes through road junctions, the junctions have been redesigned and tested to ensure that no significant traffic congestion is caused.

In its early years the tram will result in some barrier or severance effects, in particular for users of city centre streets. This is predicted to decline with time as people become used to the tram's operation. Pedestrian crossings will be maintained in all present locations and will be provided from footways to all tram stops. Provision will be made for cyclists throughout the streets where trams operate including marked cycle lanes and facilities at junctions to prevent conflicts between cyclists, trams and other road traffic.

There will be an impact on cycling and walking on the Roseburn Railway Corridor where a reduced width cycleway and footway will run alongside the tram tracks. This will reduce the amenity of this off-street route.

The tram may lead to some rationalisation of bus services with possible reductions in service frequency and routes. Provision has been made for the integration of buses and trams along key routes such as Leith Walk and Princes Street. Overall the tram is expected to significantly improve the level of public transport provision, and transport integration in Edinburgh.

### 6.2 Land Use

Development of Line One will result in some changes in land use along the route, however, because much of the route is along existing roads these are quite limited. The principal impacts are:

- demolition of a public house (The Caledonian Alehouse), and relocation of the Heart of Midlothian War Memorial, both of which are listed buildings located at Haymarket;

- demolition of an unused bridge over the former Roseburn Railway Corridor at Easter Drylaw Drive;
- development of a site for a depot in Leith adjacent to Constitution Street which is currently used for industrial storage, and demolition of a concrete batching plant on this site;
- redevelopment of the former Roseburn Railway Corridor, resulting in a change from its current use as a cycleway and footway only, to a tramway with a shared cycleway and footway. This will result in the loss of a substantial amount of mature vegetation from the corridor between Roseburn and Telford Road;
- widening of the West Granton Access Road in Pilton to accommodate the tram alignment on the western side of the road, requiring development on the currently vegetated and landscaped corridor at the road edge;
- engineering works to the seawall at Starbank Road to widen the footway and provide additional width to the road to integrate the tram;
- substantial remodelling of road junctions and associated streetscapes at Haymarket and Picardy Place; and
- loss of two small areas of new landscaping/planting due to permanent development of the tram alignment at Balbirnie Place near Haymarket Yards and outside Ocean Terminal in Leith.

### 6.3 Geology, Soils and Contaminated Land

Provided that best construction practices on site are adopted by the contractor, no significant impacts on geological or soil resources are predicted. The effects of construction work, particularly along the Roseburn Railway Corridor, are such that compaction and disaggregation of soils are unlikely to be avoided completely but, given the nature of the land likely to be affected, these impacts are not predicted to be significant.

Contaminated material encountered during construction will be dealt with in compliance with best practice, current legislation and statutory guidance. Site investigations, the preparation of management plans where appropriate, and compliance with those plans will ensure that no significant risks arise if contaminated material is encountered.

### 6.4 Urban Landscape and Townscape Impacts

Landscape and townscape impacts are physical changes caused by development which affect the character of the landscape and how it is experienced. Overall, the development of Line One will have major adverse townscape impacts, primarily arising from the introduction of overhead wiring. This will have a negative impact wherever it is in the city but it is particularly significant in sensitive areas such as the World Heritage Site and the Leith Conservation Area.

Street surfaces will be re-laid along the whole route to permit the construction of the tram rails, but will normally be finished to match or improve the existing surface. This will allow some townscape improvements at specific locations, such as Haymarket Terrace. It also provides the opportunity for wider-scale townscape improvements in partnership with the City of Edinburgh Council and others, which would be undertaken outwith these proposals.

A number of road junctions will be reorganised, most notably at Haymarket and the top of Leith Walk but this will not, of itself, significantly change the character of these areas. The route at Haymarket

requires the demolition of the Caledonian Ale House, which will open up the Haymarket area more, reducing the degree to which it is seen as a ‘place’.

Along the Roseburn Railway Corridor a considerable proportion of the trees and shrubs that have grown up since the railway was closed, will be removed for construction. This will significantly alter the landscape, making it feel much more open and less well vegetated. It will, however, also allow the creation of an open, more supervised and thus possibly safer landscape corridor.

The tram stops will generally have a small effect on the townscape. The platform height is sufficiently low (approx 350mm) to resemble a high kerb rather than a railway platform, and the shelters will resemble large, well-designed bus stops. They will be more noticeable and have a larger impact where they sit in the centre of the street, as in Leith Walk.

Recognising the sensitivity of Edinburgh, seen as one of Britain’s national cultural assets and the most highly valued of Scottish townscapes, the promoters are committed to a high quality of design in all aspects of the tram system. This will be achieved by following requirements contained in a Design Manual, which has been commissioned and is currently being developed in consultation with the City of Edinburgh Council, Historic Scotland and the World Heritage Trust. The Design Manual stresses that the most effective way to mitigate the impact of the tram is to ensure that the system is well designed and fits well into the fabric of the city.

## 6.5 Visual Impact

This section reviews the impact of Line One on the visual environment enjoyed by those living, working or visiting, in areas affected by the line. The area from which the tram will be seen is comparatively restricted because of the built up nature of the route, except in more open areas such as Princes Street and the waterfront from Granton to Leith. Distant views of Line One are generally screened by buildings.

The overhead wiring will cause visual impacts from houses, flats and tourist locations along much of the tram route, wherever the proposed development is clearly noticeable. This will be most significant in the New Town where designed vistas and iconic tourist views of the city are affected and along the Roseburn Railway Corridor where views will be opened up by the removal of vegetation. Through the city, the visual impacts will be minimised by following the requirements of the Design Manual and by careful engineering, but there will be a significant residual impact. Along the Roseburn corridor, replacement planting and screen hedges will be introduced to help screen views opened up by necessary clearance of existing planting.

## 6.6 Ecology and Nature Conservation

Construction works for the widened footway along a 250m section of the seawall at Starbank Road will have a direct impact on the Firth of Forth, a Special Protection Area designated under the European Directive on Wild Birds and a Site of Special Scientific Interest and an international wetland of importance for conservation. The site is of international importance for wintering birds. Construction will involve access to, and occupation of, a strip of the foreshore at Wardie Bay and effects on the foreshore will occur. In accordance with the European Directive further work will be required to survey the level of interest along the foreshore and to establish the impact of the project on the Special Protection Area and to further inform the necessary mitigation measures. The current plans are not expected to adversely affect its integrity. Best construction site practice will be adopted by the contractor to minimise disturbance to birds and to prevent pollution of the foreshore during construction. The permanent impacts of the widened footway will be mitigated through provision of bird roosts in the new structure.



Construction of the tram along the Roseburn Railway Corridor will have a significant impact on the Urban Wildlife Site designated along the corridor from Roseburn Terrace to Telford Road. Development of the tram in this location will involve the loss of mature vegetation from the edges of the railway corridor and there will be significant impacts on badgers (a protected species) due to direct effects on setts and foraging routes and areas along the corridor. Mitigation may include sett relocation, provision of fencing and tunnels with all necessary licences and in agreement with Scottish Natural Heritage and the Lothian Badger Group. A number of habitats identified in the Lothian Biodiversity Action Plan will be affected including woodland, urban habitats, coastal and marine and wildlife corridors, and opportunities will be sought to mitigate these effects through replacement planting and habitat creation.

There will be significant disturbance to fauna around the site during construction from noise, lighting and dust. Particular attention will be given to mitigating temporary impacts to badgers and other protected species such as bats and nesting birds.

## 6.7 Water Quality

The scheme crosses the Water of Leith on existing bridges at Coltbridge Viaduct and on Ocean Drive, and no significant impacts to water quality are predicted during construction or operation. Construction activities will be located within the tidal area of the Firth of Forth along Starbank Road. A construction method statement will be submitted by the contractor for approval by the relevant statutory authorities prior to commencement of this work. The method statement will include mitigation measures designed to ensure no polluted materials are discharged to the Firth of Forth and to minimise the risk of accidental impact.

Existing drainage systems will be used to avoid impacts on drainage and flooding. The scheme may improve the existing drainage regime in areas where the principles of sustainable urban drainage systems (SUDS) are applied, for example through the use of filter trenches and swales.

The contractor will ensure that all SEPA requirements and guidelines on effluent and waste disposal are adopted to minimise any risks from accidental fuel spillage. All appropriate consents will be obtained.

## 6.8 Cultural Heritage

Some 86 sites of archaeological, cultural and historical significance have been identified along the route. These comprise:

- 16 sites of national importance;
- 20 sites of regional importance;
- 27 sites of local importance;
- 23 sites of little or no importance.

The principal effect on these will be to their setting, generally evaluated as a major adverse impact. The only Scheduled Ancient Monument is the Victoria Bridge in Leith Port. Of the remaining 15 sites of national importance, all but one are railings, gatepiers and lamp standards associated with Category A Listed buildings.

One listed building, the Caledonian Ale House (Category C(S)) will be demolished and the Category C(S) listed Heart of Midlothian War Memorial which is located in the road junction at Haymarket will need to be relocated.

Mitigation has been identified for each of the sites which is predicted to be directly affected. In the majority of cases this involves a photographic survey since a high proportion of the sites comprise historic street furniture, most of which is unlikely to suffer physical impact during the works. Where features are disturbed they will be removed for storage and reinstatement.

## 6.9 Socio Economic Effects

Line One runs through some of the most deprived parts of Edinburgh in the north of the city (forming the North Edinburgh Social Inclusion Partnership Area) and its construction and operation provide opportunities for direct employment of residents and indirect employment benefits through improved accessibility to other jobs.

Construction of Line One is predicted to generate temporary employment for Edinburgh residents equivalent in its economic impact to around 65 permanent jobs. Secondary effects are likely to increase this to about 72 or slightly less than 1% of the number of unemployed in Edinburgh in 2001. Further employment is likely to be taken by non-residents providing specialist skills or services not available locally.

In the long term operation and maintenance will require approximately 184 full time equivalent staff. When the effects of displacement of jobs (*eg* from reductions in bus operations), leakage of jobs to areas outside of Edinburgh, and secondary effects are accounted for, the net employment effect is predicted as about 170 jobs or approaching 2% of current unemployment.

Surveys of existing local businesses in the vicinity of the route of Line One have indicated that operation of the tram could assist in filling up to 30 employment vacancies per annum due to greater accessibility to the labour pool in North Edinburgh.

The tram system will also assist in take up of employment in new development sites in Granton, Newhaven and Leith by residents around the route. This will include the North Edinburgh Social Inclusion Partnership (SIP) area where unemployment is currently above average. It has been conservatively estimated that improved accessibility to the large future labour market in Waterfront/Leith will generate between 35 and 100 new jobs in the North Edinburgh SIP area, which is equivalent to 4% to 12% of the total unemployed in this area (October 2003 figures).

## 6.10 Noise

Development of Line One will have impacts on the noise environment of Edinburgh in various ways:

- during construction;
- directly through operation of the tram past homes and other sensitive land uses;
- indirectly through the effects of Line One on patterns of road traffic movement.

During construction contractors will be required to adopt best practicable means to minimise noise. Despite this, impacts on noise sensitive receptors near Balbirnie Place, the southern part of the Roseburn Railway Corridor, around Pilton March West, Trinity Crescent, Starbank Road, Pier Place, Ocean Drive, Constitution Place, Constitution Street, Leith Walk, Shandwick Place and West Maitland Street, are likely to be unavoidable because of their close proximity to the route.

Stop construction is also likely to affect Rosebery House, Pier Place and South St Andrew Street.

Night time working will sometimes be unavoidable, for example at major junctions in the city centre, and significant impacts will occur to nearby residential properties. This will only be undertaken with the prior agreement of the Council.

The assessment of operating noise from the tram has indicated that noise mitigation will be needed in various areas, mainly along the Roseburn Railway Corridor. This can be provided in most cases by installation of noise barriers and these are proposed in the following sections along the route:

- Balbirnie Place;
- Wester Coates Terrace and Upper Coltbridge Terrace;
- Blinkbonny Road;
- Craigleith View;
- Craigleith Bank and Blinkbonny Grove;
- South Groathill Avenue, Groathill Road South and Groathill Gardens East;
- Groathill Avenue;
- Telford Drive and Easter Drylaw Drive;
- Pilton March West.

Barriers will be located in positions to maximise their effect, usually as close to the tram as possible and residents will be consulted on their final disposition and design. With these barriers residents along the Roseburn corridor will still notice some change in the noise environment but the impact should be slight in most locations. Significant noise impacts are not predicted where the tram runs along streets.

Noise from tram stops and squeal from wheels as trams travel round bends will be mitigated by measures which should prevent these being significant.

At the depot daytime operations should not lead to significant impacts but there will be some impact at night. Further consideration will be given to ways of mitigating this but some night time disturbance is likely to remain for properties nearby.

Vibration from tram operations will not be significant for buildings or their occupiers.

Wider impacts across Edinburgh could arise from changes in traffic movements cause by traffic displacement and re-routeing and modal transfer. A strategic level of assessment has been applied to appraise this effect and indicates that across the city there is unlikely to be any net increase or decrease in noise annoyance. A small number of households will experience perceptible decreases in traffic noise but these will not be significant.



## 6.11 Air Quality

The tram will have impacts on air quality from construction, directly from operation and indirectly by changing road traffic patterns.

As with noise, dust from construction will be strictly controlled but significant impacts are still likely to occur along the route because of the close proximity of some neighbouring properties to working areas.

The tram itself will not emit any air pollutants as it will be electrically powered but there will be emissions from electricity generation. These are not of concern for local air quality because they will be very small and distant from the route, but there will be concern about increased carbon dioxide from the power sector as this is an important greenhouse gas contributing to climate change. The UK and Scotland have set ambitious targets to reduce carbon dioxide emissions. The increase in carbon dioxide emissions from power generation will, however, be offset by reduced emissions from road traffic as travellers transfer from their cars to the tram. These effects will balance out in the early years of operation but by 2026 there should be a small net reduction in emissions equivalent to approaching 1% of current emissions from the area's road network.

Over the wider area of the city, road traffic changes caused by Line One will lead to improvements in air quality in some areas and reductions in others. On the majority of road links there will be very little, if any, change. On balance there will be a small to moderate net benefit from introduction of the tram in terms of the two key pollutants from traffic, nitrogen dioxide and fine particles with an approximate 5% reduction in the number of streets failing to meet air quality objectives in 2011. The benefit is less in 2026 as traffic congestion increases.