



METROLINK PHASE 3

**961101 01 rpt Ashton extension Environmental Statement Volume 1 Text
(non Technical summary)**

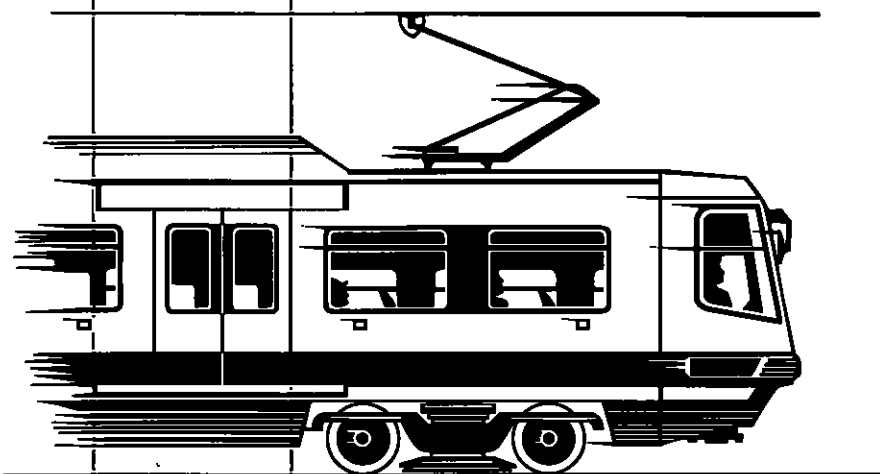
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The Greater Manchester (Light Rapid Transit System) (Ashton-under-Lyne Extension) Order

Environmental Statement Volume 1 Text



Metrolink
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1 NON TECHNICAL SUMMARY

1.1 Introduction

1.1.1 The construction of the first phase of the Greater Manchester Light Rapid Transit System was one of the most significant recent investments in infrastructure in the North West. The Strategic Development Plan for Public Transport 1992-2002 set out the plans of the Greater Manchester Passenger Transport Authority (GMPTA) and Executive (GMPTE) for developing a network of light rapid transit (LRT) as an integrated part of the public transport provision for the conurbation and a key part of the package bid to central government for funding. This plan identified a number of potential route corridors which were to be examined in greater detail. One of these corridors extended through East Manchester to Ashton-under-Lyne.

1.1.2 An application is now being made for an Order under the Transport and Works Act 1992 to build and operate a Metrolink extension from Manchester Piccadilly to Ashton-under-Lyne Town Centre. An Environmental Statement has been prepared examining the likely environmental impact of this line. This is a summary of its findings.

1.2 The Proposed Scheme

1.2.1 The Strategic Development Plan for Public Transport 1992-2002, published by GMPTA, has as a central objective the arrest and reversal of the chronic decline in patronage in public transport. The six priorities of the Plan include promoting quality of service across the network, promoting accessibility for people who are dependent on public transport and maximising the contribution of each mode of public transport, including specifically light rail.

1.2.2 The Plan identified a number of possibilities for the implementation of additional light rail schemes. It suggested a radical examination of the potential for serving East Manchester and the centre of Ashton-under-Lyne by a possible street running alignment. In November 1992 GMPTE commissioned a study of the potential for an extension to the Metrolink system which would serve parts of East Manchester and terminate at Ashton-under-Lyne.

1.2.3 The proposed route of the East Manchester extension would provide a clean and efficient additional public transport link for this corridor. It would serve a number of densely populated urban and suburban areas from which people

commute to the city centre and elsewhere in the metropolitan area. It would open up travel opportunities for people living along its route and conversely improve access to the area improving prospects for local trade. Indications are that the route has the traffic potential to provide a satisfactory rate of return on investment.

1.2.4 The description of the proposed alignment in this and subsequent chapters commences at Piccadilly Station undercroft and progresses eastward to Ashton-under-Lyne. For ease of description the proposed alignment has been split into a number of sub-sections as follows;

- Piccadilly Stop to the east side of Beswick Street (west side of Holt Town Bridge);
- Holt Town Bridge to south side of Ashton New Road (adjacent to Ciba Geigy);
- Ashton New Road to west side of Edge Lane;
- Edge Lane to North Drive (west side of Droylsden Road access);
- North Drive to west side of Richmond Street;
- Richmond Street to Ashton-under-Lyne Terminus.

1.2.5 Trams will operate on the route at approximately six minute intervals during the day. They are powered by 750 volt DC electric current delivered through overhead wires. The design and operation of the system has safety as the first priority.

1.3 Alternative Routes Considered

1.3.1 Before developing the present route in more detail, a number of alternative routes between Manchester City Centre and Ashton-under-Lyne were considered, whilst other transport mode options were also considered, such as buses and heavy rail. Although environmental considerations were of key importance, they were not the only issues that influenced the final decision for the choice of alignment. Other issues included the engineering feasibility, design characteristics and costs.

1.3.2 After selection of the route it was recognised that there were remaining sensitive areas that required further investigation. Different alignments were tested and some options were rejected because of their effects on the environment. Several options were considered across the Eastlands site and Ashton Moss where a range of issues including future developments, previous land uses, nature

conservation, ground conditions and recreational uses made the choice of alignment difficult.

1.4 The Construction Phase and its Impacts

- 1.4.1 The precise timing of the construction of the project is uncertain and will be dependent upon the date at which powers are granted and the availability of funding. However, it is the aspiration of GMPTE that the line as far as Eastlands should be complete and ready for operation before the commencement of the Commonwealth Games in 2002. It is envisaged that preparatory work would take twelve months. This would be followed by a thirty month construction period and a six month commissioning period.
- 1.4.2 The nature of the construction involved means that disturbance will not affect each section of the route for the whole of the construction period, nor will all construction compounds be used at the same intensity throughout the period.
- 1.4.3 Construction work will generally involve:
- diversion of statutory undertakers services;
 - demolition of buildings, as appropriate;
 - removal of topsoil/existing road surfaces;
 - import of ballast/concrete/tracks and other equipment;
 - tracklaying and re-instatement of road surfaces (as appropriate);
 - construction of stations, sub-stations and ancillary buildings;
 - erection of overhead line equipment, signalling and street furniture;
 - reinstatement of adjoining land.
- 1.4.4 More significant engineering works are required at a number of locations including a tunnel under Great Ancoats Street, new bridges across the River Medlock and Ashton Canal, new retaining structures for Ashton Canal, an overbridge across the M66 motorway (or introduction of tram rails into another planned bridge) and a viaduct or similar structure to allow Metrolink to cross railway lines at Ashton Moss South Junctions.

1.4.5 Property demolition will be required in a number of locations:

- Portugal Street East - industrial premises
- Fair Street - industrial premises
- Chapeltown/Longacre Street - industrial premises
- Pollard Street - industrial premises
- Holt Town - industrial premises
- Corbett Street - industrial premises
- Croft Street - industrial premises
- Manchester Road/Manor Road - residential and commercial properties
- Manchester Road/John Street - residential properties
- Ashton Road, Droylsden - residential and commercial properties
- Droylsden Road, Audenshaw - residential properties and petrol filling station
- Manchester Road, Audenshaw - residential properties
- Wellington Road (north side) - industrial premises
- Wellington Road (south side) - industrial and commercial premises
- Ashton-under-Lyne Terminus - multi-storey flats

1.4.6 Demolition techniques will depend on the proximity of the building to areas open to the public. Special precautions such as hoardings and footway diversions will be introduced to protect the public from danger. In residential areas, demolition of properties will be carried out during normal working hours to minimise impacts. In order to implement these safeguards, a Code of Construction Practice has been prepared, with which the contractor will have to comply.

1.4.7 Noise and vibration resulting from construction will largely be confined to sites of major engineering work and construction compounds. Short-term noise disturbance will occur at on-street sections where the existing road surface will have to be broken up before track laying. Construction traffic will also produce noise and vibration. Measures to reduce noise include screening of fixed plant, siting noisy equipment away from sensitive areas and routing traffic away from sensitive areas. Working hours will also be restricted.

1.4.8 Dust will be generated by work such as earthmoving, and the transportation, use and storage of materials, particularly sand and cement. Measures such as enclosing stockpiles for materials can help to reduce these problems.

- 1.4.9 The quality of surface water and groundwater near construction sites can be affected through contamination by oil, lubricants and other fluids, and material from the demolition of buildings, construction work or disturbance of contaminated ground. Appropriate mitigation measures include the disposal of contaminated material at authorised disposal sites, and the use of on-site temporary waste storage facilities.
- 1.4.10 Disruption to traffic will be an inevitable consequence of constructing much of the route along streets. Road closures may also be required near to property demolition sites. Temporary road closures and diversions are likely to be required at a number of locations. Traffic management arrangements may also be required near stop sites to facilitate delivery of materials, for example. Parking and waiting restrictions may need to be imposed on streets affected by construction activity. Where diversions prove necessary it will be important to sign them clearly and avoid creating diversionary routes which will affect sensitive areas or be unsuitable for the volumes of traffic. Careful planning and programming of construction activity should avoid the need for extensive diversions and disruption to major traffic flows. This will be particularly important on the main radial route along Ashton New Road.

1.5 Operational Phase

- 1.5.1 It is expected that services on the Ashton-under-Lyne Extension will operate to a similar pattern to those currently operating. Except where stated, the environmental assessment has assumed a 'worst case' scenario of services operating at six minute intervals between 6.00 am and midnight.
- 1.5.2 Sections of the proposed route run along the existing highway where segregation of trams and motor vehicles and pedestrians is not possible. Issues of public safety have been addressed in the design of the vehicles and the route proposed. Trams are designed to provide drivers with better visibility than bus drivers. The design of the vehicles also makes it very difficult for pedestrians to go under the vehicle. Sections of the proposed route have LRVs running in a segregated section and, in these areas, there will be restricted access to pedestrians, cyclists and motor vehicles.

1.6 Land Use, Planning and Property

- 1.6.1 The proposed route would run along the existing highway as well as over land and property which currently has a number of uses. In addition, there are planning policies which need to be considered which relate to land along the route. The councils of Manchester and Tameside are required by Central Government to prepare plans and policies for the whole of the area through which the route passes.
- 1.6.2 There are no Conservation Areas or trees protected by Tree Preservation Orders which are affected by the proposal. Alterations at the Grade II listed Piccadilly Station will be subject to a separate application.
- 1.6.3 The proposal requires the demolition of five buildings in the area between Piccadilly Station and Great Ancoats Street. None of these buildings are protected as listed buildings, but they are all occupied by businesses, and their demolition is a substantial impact. The area will be landscaped following acquisition and demolition, and new pedestrian access created between Portugal Street East and Longacre Street.
- 1.6.4 The setting of Ashton Canal, noted in the planning policy for its recreational value, will be protected through landscaping, including tree planting, in the area of the proposed tunnel off Pollard Street in Ancoats. The proposal will remove an area of a site identified for development by Manchester City Council. The proposal will pass close to Victoria Mill on Pollard Street, which is to be redeveloped. The proposed route will not adversely affect the redevelopment of this mill.
- 1.6.5 The route will run through Holt Town and across the Eastlands area. The route will result in the removal of some scrap yards from the Holt Town area, considered to be a long term benefit in upgrading the River Medlock area. The scrap yard operators will be offered alternative sites elsewhere. The proposal includes additional landscaping, including tree planting, close to the riverbank, in order to improve its attractiveness and to compensate for some tree loss due to the route crossing the river to the east of Cambrian Street. The Eastlands area has been cleared for redevelopment by Manchester City Council, and is identified by the Council for sports-led regeneration, including a new sports stadium. The proposed route of the Metrolink system has taken account of, and is in support of, these planning objectives.

- 1.6.6 The proposal will require the demolition of a brick building within the grounds of the Francis Shaw and Co building and the demolition of corrugated sheds within the area of 'Skins on Rims' business off Croft Street in Clayton. In addition, a two storey industrial premises at 31 Croft Street and the Gratt Motors premises on Linfield Street will require demolition. These impacts are substantial, and acquisition will be within terms of the general compensation code although GMPTE will help, where possible, with relocation.
- 1.6.7 A small area of open space off Ashton New Road and Clayton Street will be redeveloped to provide a Metrolink stop. Childrens' play facilities will be assisted locally by GMPTE to recompense for any loss in play space.
- 1.6.8 Between Clayton Street in Clayton and Assheton Avenue in Audenshaw, the proposed route will run mainly along the existing Ashton New Road/Manchester Road/Ashton Road/Droylsden Road corridor. This will affect the current arrangement of on-street parking, and it is proposed that, as the width of the highway is sufficient, sheltered parking bays be provided. The route leaves the highway at four locations so that Metrolink stops can be provided. All four stops require the demolition of properties: at the proposed Edge Lane Stop, 25 properties will need to be demolished; at the Cemetery Road Stop, 14 properties will be demolished, at the proposed Droylsden Stop eight properties will be demolished and at the Audenshaw Stop 18 properties will need demolishing. This is a substantial impact. In addition, the proposed Droylsden Stop will require alterations to the boundary of St. Mary's CE Infant and Junior School and the relocation of their mobile classroom.
- 1.6.9 Between Assheton Avenue in Audenshaw and the terminus at Ashton-under-Lyne Town Centre, the proposed route will run off-street. The route requires the demolition of 17 houses on Manchester Road, a substantial impact. Part of this area will be used for replacement open space. The route then crosses Ashton Moss, running near and parallel to the proposed North Ashton Bypass. The route would cross the M66 motorway extension which is under construction. In addition, a planning permission exists to develop an office, industrial and leisure park on part of Ashton Moss. The proposed route has been designed taking these developments into account and will not obstruct their progress. In fact, the Metrolink extension is in support of planning policies which identify Ashton Moss for development.

- 1.6.10 East of Richmond Street, the proposed route crosses a Site of Biological Importance. The site is, however, identified by council planning policies as falling within a development opportunity area, and the Metrolink system is in support of this policy. The former National Gas Engine Company building on Wellington Street will require demolition, considered a substantial impact. Again, the building falls within the development opportunity area, which is supported by the Metrolink extension. The area to the north of Wellington Road, whilst being affected by the proposed alignment, will also be substantially changed if the Ashton Northern Bypass is built.
- 1.6.11 Between Cavendish Street and Ashton bus station, the proposed route will require the demolition of a number of buildings within the Wellington Road Industrial Estate and 24 maisonette flats immediately north of Assheton Close. Their demolition is a substantial impact.

1.7 Cultural Heritage

- 1.7.1 Greater Manchester Archaeological Unit undertook desk based studies and site visits in order to identify sites of historical interest along the proposed route. No Conservation Areas or Scheduled Ancient Monuments are affected by the route. There are a number of structures, mostly canal locks, which are protected by being listed, but only one listed structure, the Grade II listed Piccadilly Station train shed is in the vicinity of the proposed alignment, and alterations to this building will be the subject of a separate application for listed building consent.
- 1.7.2 The study identified some buildings and sites of interest in the Piccadilly and Ancoats area, including the Star Iron Works and the fire station on Boond Street. The perimeter wall of the fire station will be partly demolished. A 19th Century warehouse associated with the spinning mill at Carruthers Street will be demolished. The building is of local importance and will be subject to an archaeological survey prior to demolition.
- 1.7.3 The most significant archaeological sites along the route are Clayton Hall, a moated site of medieval origin, and the Nico Ditch, an earthwork which crosses beneath Ashton Road at its junction with Williamson Lane. The proposal would not affect the hall, and a watching brief is proposed to ensure that the ditch is not damaged by constructing Metrolink.

- 1.7.4 Ashton Moss has evidence of pre-historic activity, including flints, stone axes and skulls. Coins of the first and second centuries AD have also been found. However, features of the medieval mossland landscape are unlikely to have survived. The proposed development of Ashton Moss for an office, industrial and leisure park, along with the construction of the M66 motorway extension and the Ashton Northern Bypass, will affect the remaining cultural heritage of the area. It is therefore unlikely that the proposed route of Metrolink across Ashton Moss will result in an impact over and above that which is to result from the development of the office, industrial and leisure park, which has planning permission, and the road proposals, the M66 extension currently under construction.
- 1.7.5 The route will require the demolition of the former National Gas Engine Company building on Wellington Road. The building is of local importance and will be the subject of an archaeological survey prior to demolition.

1.8 Ecology and Conservation

- 1.8.1 The proposed route passes mainly through urban areas which have limited nature conservation interest. Areas of vegetation within the urban area are typically improved grassland, parkland and derelict and vacant areas which have become overgrown. Trees located within the urban area tend to be isolated and of limited ecological value. Areas and sites of potential ecological interest along the route include the Ashton Canal, Ashton Moss and an area known as the Ashton Railway Triangle.
- 1.8.2 Ashton Canal is a Grade A Site of Biological Importance and is of county significance. The proposed route will pass close to the canal, crossing it at Clayton. The canal contains floating water plantain, which is a plant protected by an Act of Parliament. Good site practice during construction should avoid any potential threat to this plant. Sectional drainage of the canal is to be avoided, where possible, as it would endanger this plant within the drained section.
- 1.8.3 Some roadside trees will be lost to the proposed route, and this is seen as slight impact due to the limited ecological value of the trees.
- 1.8.4 A new access road connecting Assheton Avenue to Manchester Road is proposed as part of the LRT works. This would remove an area of green open space which, whilst not a site of registered ecological importance, does contain some

diverse and interesting vegetation of local importance. This will be replaced within the area of open space to be created to the south of Windsor Drive.

- 1.8.5 The proposed route will cross Ashton Moss alongside and parallel to the Ashton Northern Bypass. The ecology of Ashton Moss is also likely to be substantially affected by the development of the M66 motorway extension, which is currently under construction, the Ashton Northern Bypass and the office, industrial and leisure development on the Moss. In the absence of these proposals, the LRT route will result in the loss of hawthorn hedges and other plants of no more than local importance. The importance of the Ashton Moss is therefore as an area of peatland which provides open space within the urban area, and the proposed route would not diminish this.
- 1.8.6 The proposed route will remove an area of land from a Grade C Site of Biological Importance within the Ashton Railway Triangle off Richmond Street. The site contains plants of greater than local significance to nature conservation. The proposed Ashton Northern Bypass, will destroy more than 30% of the site. In addition, the site is allocated by the planning policies of Tameside Council for development. However, in the absence of these developments, the proposed Metrolink alignment will remove or affect less than one tenth of the site, and thus create a slight impact.

1.9 Landscape and Visual

- 1.9.1 Potential sources of landscape and visual impacts fall into four main categories. The construction phase will include the impact of material storage areas, site huts, lighting and equipment. Secondly, some existing landscape features will need to be removed to accommodate Metrolink, ranging from large scale elements such as buildings and mature trees, to small scale elements such as fences and street furniture. Thirdly, the introduction of new permanent features, such as overhead wiring, signs and furniture, new stops, engineering features and changes to existing surface treatments can result in an impact. Finally, the operation of the trams themselves will result in an impact upon the landscape through which they run.
- 1.9.2 The impact on the landscape, such as into an affected area, will be substantial at certain locations, in particular at compounds, during the construction period. However, this impact is temporary, and measures such as screen fencing and appropriate lighting can reduce the effect.

- 1.9.3 The demolition of buildings between Portugal Street East and Great Ancoats Street to accommodate the proposal will result in a moderate to substantial impact upon the urban landscape, although improvements to the area through landscaping will greatly enhance the attractiveness of this predominantly industrial area.
- 1.9.4 The introduction of a tunnel beneath Great Ancoats Street, with associated cuttings, retaining walls and portals, will have a substantial impact upon the landscape, particularly upon the setting of the Ashton Canal. The impact upon the canal will be reduced through the planting of an area of trees between the LRT route and the canal.
- 1.9.5 The design of the Pollard Street Stop and its immediate surroundings will take into account the views from St. Anne's Primary School, which is identified as being sensitive to changes to the surrounding environment. The stop can also contribute to the improvement of the landscape surrounding Victoria Mill, which is being redeveloped.
- 1.9.6 The location of the Holt Town Stop will require the removal of an area of greenspace containing trees, which slopes down to the banks of the River Medlock. However, much of this area will remain, and will be landscaped and pedestrian access provided along this section of the river.
- 1.9.7 The proposals will result in the loss of approximately 0.27 hectares of trees along the banks of the River Medlock to the east of Cambrian Street. It is proposed to provide replacement tree planting within the Medlock Valley or make a financial contribution to the Red Rose Community Forest if no site is available.
- 1.9.8 The setting of the Ashton Canal in the Eastlands area will be affected by proposed tunnelling and/or road and rail overbridges in order to cross Alan Turing Way and New Viaduct Street. The operation of the trams across the open landscape of the Eastlands area, in the absence of wider redevelopment in the area, will result in a moderate impact.
- 1.9.9 At Clayton, the proposed route will require the removal of trees and shrubs adjacent to the viaduct. Replacement planting between the road and the proposed track will reduce the visual impact from Ashton New Road. The proposed bridge across the Ashton Canal will have a moderate impact on the landscape in this area. On the east side of Ashton New Road, the proposed route will improve the

setting of Ashton Canal by removing some of the industrial structures located close to the listed canal lock.

- 1.9.10 The proposed Clayton Stop will remove a number of mature trees and an area of open grassland. Replacement tree planting and the implementation of an urban design scheme will compensate for these losses.
- 1.9.11 The demolition of properties to accommodate the Edge Lane Stop will have a substantial impact on the local environment and on views from neighbouring properties. A similar impact will result from the demolition of properties to accommodate the Cemetery Road Stop, Droylsden Stop and the Audenshaw Stop. The proposed urban design of these stops and their immediate surroundings will reduce the long term impact of the proposal at these locations. The Cemetery Road Stop will be located close to 4 houses on Kershaw Street, and it is proposed both to erect a barrier at the back of the stop, in order to reduce visual impact, and possibly extend their rear gardens.
- 1.9.12 Residential properties fronting onto Manchester Road in Audenshaw will be demolished due to the proposals, resulting in the exposure of the rear of houses fronting onto Windsor Drive. In addition, an area of open grassland to the west of Windsor Drive will be lost. These impacts are substantial, but will be reduced by landscaping the area of land released through demolition as open space.
- 1.9.13 The landscape and visual impacts across Ashton Moss would be substantial in the absence of other development proposals, such as the Ashton Northern Bypass and the office, industrial and leisure development. However, within the context of these developments, the impact of the Metrolink system upon Ashton Moss will be slight.
- 1.9.14 The construction of a new viaduct to accommodate the Ashton West Stop, and the demolition of buildings off Wellington Road, will result in a substantial landscape and visual impact. However, if the Ashton Northern Bypass is constructed, the degree of impact associated with the LRT proposal will be reduced. In addition, there will be opportunities for landscaping as a result of demolition.
- 1.9.15 Around the Ashton-under-Lyne Terminus, landscaping will be introduced in order to replace the area of the Radcliffe Freedom Garden lost to the scheme, and also to reduce the visual impact of the terminus structure upon the residents of Assheton House.

1.10 Noise

- 1.10.1 Trams produce noise in different ways. They produce relatively little engine noise, since they use electric motors. Thus the main contribution to noise levels will result from the interaction of the LRV's wheels with the rails. Other sources of noise from the system could include noise from auxiliary equipment, noise resulting at the stops and horn noise.
- 1.10.2 One of the most important aspects in reducing operational noise levels is the maintenance of wheels and rails. Other measures include the provision of solid barriers alongside the tracks and, in the most extreme cases, insulation of dwellings. Except for emergencies, the use of horns will be strictly controlled.
- 1.10.3 Construction work of any type that involves heavy machinery generates a significant amount of noise and can lead to high levels of complaint without sensitive scheduling and control. The effects on a neighbourhood during construction of a new light rail system will depend on the specific construction activity and the proximity of local residents. Disturbance due to construction noise from a scheme of this sort, although it may be significant, is usually confined to short periods of a few days throughout a longer overall construction period. The main sources of noise will be road breaking, bridge works and demolition.
- 1.10.4 Piling works frequently form one of the noisier aspects of construction and, despite their short duration, can often lead to disturbance. Piling is usually one of the first activities to be carried out on and so special precautions need to be taken to avoid nuisance. The noise levels from piling vary, depending on the type of piling being used and on the composition of the soil that is being bored. Areas identified along the Ashton Extension, where piling is likely to be needed, include the tunnel under Great Ancoats St, the River Medlock crossing and the proposed viaduct near Richmond Street.
- 1.10.5 Along much of the route, background noise levels caused by traffic and other activities are already such that the addition of noise from LRVs would be relatively insignificant. However moderate noise impacts have been identified at two areas where the route passes particularly close to sensitive properties with lower ambient noise levels, such as at Windsor Drive and Milton Road. Even here it is anticipated that residual noise impact, after mitigation, will only be of low significance. At these locations and around stations that are close to housing,

careful design, including the use of screen fencing and planting will help to reduce noise impacts.

1.10.6 Noise during the construction phase will depend upon the specific construction activity and the proximity of houses. The demolition of properties close to areas such as Manor Road, Kershaw Street, Audenshaw Gyrotory, Windsor Drive, Layard Street and Assheton Close may require temporary screening. Working hours will be restricted to minimise disturbance at other areas sensitive to construction noise, such as St Annes Infant School, Manchester Road Junior School and St Mary's C of E Junior and Infant School.

1.10.7 The Code of Construction Practice includes the following provisions for areas where noise is likely to be a problem:

- Sites to be surrounded with fencing or other barriers, where appropriate, and continuous plant to be housed in acoustic enclosures;
- use of electrical items of plant instead of diesel plant in especially sensitive locations;
- exhaust silencing and plant muffling equipment to be maintained in good working order;
- nighttime working to be kept to an absolute minimum and the normal working day to be used wherever possible.

1.11 Vibration

1.11.1 Vibration is a complex mechanism by which mechanical movement of a source is transmitted to a receiver. For the LRT scheme, the source of vibration is interaction between the rail and wheel of the moving LRV which passes through the track bed and into the ground. Propagation through the ground is reduced before reaching a building foundation but the degree of reduction depends on soil and geological formations.

1.11.2 Maintenance of rolling stock and track is very important in reducing vibration. Surface grinding is used to correct excessive roughness on wheels and rails to help prevent excessive vibration. The isolation of the track bed can also be very effective in reducing ground borne vibration along particular sections of track.

- 1.11.3 Slight, perceptible vibration impacts during the construction phase have been predicted for Merrill Street, some properties on Ashton New Road and Manchester Road, Kershaw Street, Lumb Lane, Windsor Drive, Wellington Street and Assheton Close. These short term impacts will result from road breaking operations and demolition work.
- 1.11.4 Moderate vibration impacts during the operation of the line have been predicted for Crossley Court Hostel on Merrill Street, as a result of close passage of trams. In this area the isolation of a section of track bed has been proposed to reduce disturbance.

1.12 Traffic and Related Safety Issues

- 1.12.1 The implementation of the proposed scheme may have a number of effects on the local traffic, pedestrians and cyclists:-

- car drivers may transfer to Metrolink;
- street-running trams will add to the existing traffic flows on long sections of the route;
- traffic may divert to alternative routes, either because of road closures or access restrictions, or simply by drivers choosing alternative routes - the latter is most likely to occur during the construction phase;
- junctions crossed or affected by the scheme will be redesigned to accommodate trams and provide additional pedestrian facilities;
- more extensive signal control of traffic movements to ensure safe passage for trams will be employed at some locations. This may bring additional safety benefits for other road users, including pedestrians;
- tram stops will generate additional pedestrian or traffic movements;
- access between roads with street-running trams and side roads may be modified, restricted, or closed. Traffic flow on the small number of roads affected in this way are generally light;
- trams will cross footways at numerous locations as well as at number of public right of way - the design of crossing points will have safety as a high priority.

- 1.12.2 Moderate traffic impacts during operation have been identified at several locations. At Merrill Street, there would be delays to westbound traffic and

possible 'rat-runing', although road safety to pedestrians would be improved. At the Clayton, Edge Lane, Cemetery Road and Droylsden Stops there would be potential for moderate impacts due to access conflict between vehicles and pedestrians. At the junction of Market Street and Manchester Road there would be a potential for occasional delays due to a lack of capacity. Access to the Snipe Retail Park in Audenshaw could lead to a moderate delay for traffic in the evening peak, whilst there would be positive impacts at the gyratory where traffic movements would be improved, especially for cyclists and pedestrians.

1.13 Contaminated Land and Waste Disposal

- 1.13.1 The proposed route will pass through several areas where there is former uses may have contaminated soils or groundwater. Contaminated land and waste disposal impacts will arise principally during the construction of the proposed scheme. Typically such activities are associated with the demolition of property and excavation of land on which industrial/ commercial operations have previously been undertaken. Contaminated material disturbed by construction will require disposal at a suitably licensed site.
- 1.13.2 Substantial impacts resulting from potential contamination due to former land-uses and hazards arising from excavation and construction works have been identified for the following locations:
- cutting and crossing beneath Great Ancoats Street
 - Great Ancoats Street to Carruthers Street
 - Holt Town Stop (also potential contamination of River Medlock)
 - Cambrian Street Viaduct to New Viaduct Street
 - New Viaduct Street to Ashton New Road
- 1.13.3 For all potentially contaminated sites there would be a requirement for ground investigation including landfill gas surveys and chemical analysis of samples prior to commencement of construction works. The removal of contaminated material to a suitably licensed facility, together with the use of specific construction techniques to prevent contamination spread.
- 1.13.4 There are potential impacts at other locations, such as the possibility of leakage of underground fuel storage tanks and the potential for unrecorded mine shafts and ground gases across Ashton Moss. For such areas a watching brief would be maintained, together with monitoring during construction, with ground

investigation and chemical analysis undertaken if contamination or landfill gas is suspected.

1.14 Water Quality

- 1.14.1 The study area is drained by one main river, River Medlock, and the Ashton Canal. In addition, there are several culverted watercourses within the area and a number of drainage ditches within Ashton Moss.
- 1.14.2 During construction, watercourses could be affected by the construction of bridges across watercourses and other work adjacent to them.
- 1.14.3 It is proposed to construct bridges over the River Medlock and Ashton Canal. Positioning and design of the bridges, in terms of flood defence, landscape and ecology have been discussed with the Environment Agency.
- 1.14.4 Operational impacts on water quality are anticipated to be minimal. The trams do not emit any pollutants which could accumulate on road surfaces and hence be washed into nearby watercourses.

1.15 Air Quality

- 1.15.1 Trams do not emit air pollutants directly. The air quality impacts of the proposed LRT extension arise principally from its effects on traffic movements and traffic management. Additional impact is caused by the generation of electricity to power the vehicles and in the short term by dust created by construction activities, although the latter can be controlled by careful site management.
- 1.15.2 Localised air quality impacts due to traffic congestion are predicted to arise at the junction of Ashton New Road and Market Street; at the junction of Audenshaw Road and Manchester Road; at the junction of Audenshaw Road and Lumb Lane; at the junction of Manchester Road and the Ashton Bypass; at the Audenshaw Gyratory, as well as the junction of Manchester Road and Gainsborough Road. These air quality impacts are likely to be slight.