

12.0 MATERIAL ASSETS

INTRODUCTION

Sections 39 (2) (b) (iii) The Transport (Railway Infrastructure) Act 2001, requires that proposed developments are examined in terms of their impacts on material assets.

This section addresses impacts on Material Assets. It includes an evaluation of the diversion and/or relocation of statutory undertakers equipment and all pipes and cables laid under the trackbed for Luas Line A1. It is a key objective of this project that there should be no interruption to the operation of the Luas Line A1 for repairs or alterations to public utilities. The impacts on property and on the existing Luas Red Line are also addressed in this section.

12.2 PUBLIC UTILITIES

12.2.1 Assessment Methodology

The assessment of the proposed Luas Line A1 alignment project by reference to public utilities includes the identification of potential effects on the various existing utilities during both the construction phase (principally for the trackbed) and during the operational phase.

The extent of services throughout the receiving area has been determined by record data obtained from the various utility operators and has been supplemented through the excavation of slit trenches and geo radar surveying and mapping. Some of the services identified may require diversion where protection of the service is not appropriate. The final diversionary requirements and protection details will be determined through the detailed design process.

12.2.2 Receiving Environment

The proposed alignment for the Luas Line A1 primarily extends through greenfield areas with the majority of existing services encountered at road crossings and at the tie-in location with the existing Luas Red Line at Cookstown. In respect of public utilities the alignment will be considered in four sections, namely:

- (i) tie-in to existing Luas Red Line,
- (ii) Cookstown Road to the Outer Ring Road Phase 3 (Section A),
- (iii) Outer Ring Road Phase 3 to N82 (Section B), and
- (iv) N82 to Garter Lane (Section C).

Each of these sections is examined in turn below under the headings; Water, Gas, Sewers/Drainage, ESB, Telecommunications, and Existing Luas Red Line

Tie-In to Existing Luas Red Line

Water

The proposed Luas Line A1 alignment crosses a number of existing watermains ranging in type and size and laid at approximate depths as follows:

- 150 mm diameter watermain presently laid at 1.8 m below ground level requiring protection
- 375 mm diameter Asbestos Cement (AC) watermain laid at an unknown depth requiring diversion
- 525 mm diameter AC watermain laid at an unknown depth requiring diversion
- 610 mm diameter carbon steel watermain laid at 2 metres below ground level requiring protection
- 1200mm diameter ductile iron watermain laid at 4 metres below ground level requiring protection
- 600 mm diameter watermain laid at 0.8 metres below ground level requiring diversion
- 675 mm diameter watermain presently laid at 2 metres below ground level requiring protection

Gas

There are no known gas mains in this section of the alignment.

Sewers / Drainage

There is one record of a 300mm diameter foul sewer crossing the alignment that may require diversion in this section. There is also one record of a 300mm diameter surface water sewer that may require protection in this section too.

ESB

An existing high voltage 110kV overhead line extends parallel to the proposed alignment to the south of the approved Embankment Road. It is anticipated that no works will be required in relation to the 110kV overhead line as a result of the proposed Luas Line A1.

The alignment crosses existing 2-way ducts (five in total) in this section.

Telecommunications

The alignment crosses existing Eircom and Worldcom 1-way ducts at this location and these will require diversion.

Existing Luas Red Line

The alignment crosses a 4-way ductbank at the proposed location of the tie-in of the alignment with the existing Luas system. This ductbank carries the Luas high voltage 750 V dc supply from the Luas substation at Cookstown feeding the Luas overhead cantenary system. Here the alignment also crosses an 8-way ductbank carrying low voltage and communication links associated with the Luas tramway.

The alignment also crosses the existing Luas track drainage system laid at a depth of 1.4m at this location.

Cookstown Road to Outer Ring Road Phase 3 (Section A)

Water

The proposed Luas Line A1 alignment crosses an existing 1200mm diameter ductile iron watermain and 600 mm diameter AC scour to the northeast of the Horse Project lands and extends parallel to the watermain to the approved Outer Ring Road crossing. It is understood that as part of the Embankment Road project, the 1200mm diameter watermain will be relocated to the centreline of the road. Such a diversion would result in an additional crossing of the watermain to the east of the approved Outer Ring Road. The records indicate that the watermain is located at sufficient depth to cross, however protection of the watermain would be required.

Gas

There are no known gas mains in this section of the alignment.

Sewers / Drainage

There are no known foul sewers along this section of the alignment. To the east of the Outer Ring Road Phase 3, the alignment crosses an existing 1350mm diameter surface water sewer. It is understood that as part of the Embankment Road project, this 1350mm diameter sewer will be relocated to the centreline of the road. As a result of this diversion the conflict between the proposed Luas Line A1 alignment and the sewer would no longer exist. However, following this diversion the alignment would cross three surface water outfalls from the Kilmartin Housing Estate to the south. The records indicate that the surface water sewers are located at sufficient depth to cross, however protection of sewers would be required.

ESB

An existing high voltage 110kV overhead line extends parallel to the proposed alignment and to the north of the approved Embankment Road. It is anticipated that no works will be required in relation to the 110kV overhead line as a result of the proposed Luas Line A1.

Telecommunications

The alignment crosses existing Eircom 4-way ducts and NTL 2-way ducts at the crossing of Cookstown Road. Records for these ducts indicate that they are laid at insufficient depth to cross and will therefore be lowered as part of the Luas works.

Outer Ring Road Phase 3 to N82 (Section B)

Water

The proposed Luas Line A1 alignment crosses an existing 400mm diameter watermain north of the Brookview Court Housing Estate to the west of the Cheeverstown Stop. The records indicate that the watermain is located at sufficient depth to cross, however protection of the watermain would be required.

The alignment runs parallel to an existing 1200mm diameter ductile iron watermain. However the alignment does not cross the watermain and is offset some 10m from the edge of track. It is anticipated that no works will be required in relation to this watermain as a result of the proposed Luas Line A1.

Gas

The Luas alignment crosses an existing 400 mm diameter 40 bar steel gas transmission main and 180mm diameter 4 bar polyethylene gas distribution main, both of which are laid in the same trench, north of the Brookview Court Housing Estate and to the west of the Cheeverstown Stop. The records indicate that these gas mains are located at sufficient depth to cross, however protection of the gas mains will be required.

Sewers / Drainage

At the track crossing on the N82, the alignment crosses a 225mm diameter surface water sewer and a 225mm diameter foul sewer. The records indicate that the sewers are located at sufficient depth to cross, however protection of these sewers will be required.

ESB

An existing high voltage 110kV overhead line extends parallel to the north of the proposed alignment to the existing ESB 110kV substation at Citywest. The 110kV line is offset some 33m centre to centre. The southern boundary of the existing Citywest 110kV substation is alongside the proposed Luas alignment.

Under a separate contract and on behalf of an adjacent land owner, the 110kV overhead line will be diverted underground from north of Brookview Court to east of Garter Lane. It is understood that these works will be completed prior to commencement of the Line A1 construction works.

To the north of Brookview Court an existing 38kV overhead line crosses the alignment and extends in a north eastward direction. Under a separate contract and on behalf of an adjacent land owner, this 38kV overhead line will be diverted underground south of and parallel to the 1200mm diameter watermain and north of the proposed Luas Line A1.

An existing 10kV overhead line extends from the Citywest 110kV substation to the N82 / Citywest Avenue road junction. In the environs of the Citywest substation the overhead line conflicts with the Luas alignment. This 10kV line will be diverted or either overhead or underground outside of the Luas alignment.

Telecommunications

The Luas alignment crosses an existing 2-way communications duct north of the Brookview Court Housing Estate and to the west of the Cheeverstown Stop.

To the east of the N82, the alignment crosses the 24-way duct Citywest Multi-User Network. Records for these ducts indicate that they are laid at insufficient depth to cross and will therefore be lowered as part of the Luas works.

N82 to Garter Lane (Section C)

Water

At two locations along Fortunestown Lane, the proposed Luas Line A1 alignment extends over existing 600 mm diameter uPVC watermains. It is understood that new watermains have been laid in Fortunestown Lane as part of the upgrade works for the road, and that the existing 600 mm watermains can be decommissioned thus presenting no conflict with the proposed Luas Line A1..

Gas

The Luas alignment crosses an existing 450 mm diameter steel gas transmission main to the southeast corner of the Carrig Court Housing Development. The records indicate that the gas main is located at sufficient depth to cross, however protection of the gas main will be required.

The alignment extends over an existing 180 mm diameter polyethylene gas distribution main to the south west of the Carrig Court Housing Development. This gas main will be diverted outside of the Luas alignment.

Sewers / Drainage

The Luas alignment crosses an existing 225 mm diameter foul sewer at the southeast corner of the Carrig Court Housing Development which is currently under construction. The alignment also crosses an existing 300mm diameter surface water sewer to the south west of the Carrig Court Housing Development. The records indicate that the sewers are located at sufficient depth to cross, however protection of these sewers may be required.

ESB

There is an existing 110kV overhead line crossing Fortunestown lane just east of the junction of Fortunestown lane with Garter lane. This overhead line crosses the proposed Luas Line A1 alignment and terminus stop. This line is supported by a pylon that is also adjacent to the proposed alignment and terminus stop. It is therefore proposed to remove and relocate this pylon and re-divert the 110kV overhead line to accommodate Luas Line A1 at this location.

To the east of the Carrig Court Development an existing 10kV overhead line crosses the alignment. This 10kV line will be diverted or undergrounded outside of the Luas alignment.

Telecommunications

There are no known telecommunication ducts in this section of the alignment.

12.2.3 Construction Impacts and Mitigation

Impacts

Ground disturbance for the construction of the track bed will generally be limited to the typical construction depth of 1200mm, with structure footings and areas of existing fill material requiring excavation to greater depths. The majority of utilities within the study area are outside of the proposed Luas Line A1 alignment, and therefore diversion of utilities will be minimal. As outlined above all utilities which cross the Line A1 alignment will be protected, and lowered or diverted as necessary. In general spare crossings will be laid alongside existing utilities, particularly at junctions with existing or proposed roads.

Examples of impacts such as delays to traffic and local access restrictions to residential and commercial property may arise where services requiring protection or diversion cross at these locations. The diversion of services to facilitate the construction of the proposed Luas Line A1 would have similar impacts to works carried out by the statutory undertakers on a day to day basis. Therefore it is not anticipated that there will be any significant adverse impacts to public utilities due to the construction of the proposed Luas Line A1.

Mitigation

Excavation in the vicinity of existing AC watermains can give rise to problems following backfilling, leading to potential damage to the pipework. Given the importance of these trunk watermains it will be necessary to replace any sections of AC pipework encountered along the proposed Luas Line A1 alignment with concrete, ductile iron or steel pipework as appropriate. The details regarding the diversion of all watermains and drainage culverting and the adequate protection of all services under or adjacent the proposed route will be identified and agreed with the local authority in advance of any Luas Line A1 works. As per the Construction & Demolition Waste Management Plan presented in Appendix 15A, the disposal of asbestos materials will be undertaken by a specialist contract to remove the potential of contamination.

12.2.4 Operational Impacts and Mitigation

In respect of public utilities, no operational impacts are anticipated. However, in order to minimise the interaction between the proposed Luas Line A1 operation and existing services, in the majority of cases additional ducting or pipes will be laid adjacent to existing services. Furthermore, given the potential for development of adjacent lands, additional crossings will be provided at various points along the alignment to cater for the possible eventuality of a need for more services to pass under the proposed Luas Line A1.

12.3 PROPERTY

12.3.1 Assessment Methodology

An assessment of the likely direct effect of the construction and operation of Luas Line A1 on property has been made.

Properties have been identified for acquisition – both of a temporary and permanent nature – along the proposed alignment. The only building demolition proposed as part of the Luas Line A1 works entails the demolition of three derelict residential properties at Fortunestown Lane.

A general examination was also carried out of the effects of the Luas Line A1 on potential future property viability for development. This overlaps with the Land Use Planning and Development section, under the heading of Socio Economic and Community Impacts Chapter 4.0.

12.3.2 Construction Impacts and Mitigation

Construction Impacts

Acquisition of land will be necessary to implement the Luas infrastructure. The potential impact on existing property though the loss of these lands is not anticipated to be significant. It is anticipated that access to properties will be maintained throughout the construction works.

Since the alignment is mainly along a greenfield corridor, it is generally free from existing development. Aside from boundary adjustments of a minor nature which are proposed at Ardmore, there is no other private residential landtake proposed as part of Luas Line A1.

The proposed Luas Line A1 alignment follows existing or planned future transport corridors or reservations to the greatest possible extent, to limit the effects on private property. The Luas Line A1 alignment between the connection to the existing Red Line and Cheeverstown Stop runs in immediate proximity to the approved alignment of the Embankment Road, in order to minimise the amount of segregated lands between these two route corridors.

Under a worst case scenario, access to properties would fail to be maintained during the construction phase. However, best practice and proper construction management procedures will be implemented to avoid such a worst-case scenario.

Mitigation Measures

Where applicable, compensation will be payable to the property owners of acquired land and buildings, in accordance with the general compulsory purchase code.

Where required, specific remedial measures will be put in place to protect the amenities of the existing residential properties in closest proximity to the alignment. These are addressed in the relevant sections of this EIS.

Reinstatement of the boundaries lands acquired will be carried out upon completion of the construction of the LRT.

12.3.3 Operational Impacts and Mitigation Measures

Operational Impacts

The operation of the Luas Line A1, ultimately linking the Tallaght West/Citywest area and Dublin City Centre will increase the attractiveness of these residential and employment areas, and will strengthen the property market in the vicinity. The demand for property and property values could potentially increase due to the insertion of the Luas Line A1.

Mitigation Measures

No mitigation measures are required in respect of property or property values.

12.4 LUAS RED LINE

12.4.1 Assessment Methodology

This section assesses the potential impacts of the proposed Luas Line A1 upon the existing Luas Red Line services and passengers.

Surveys of existing Luas passengers were carried out in November 2004. The surveys counted all passengers boarding and alighting trams at all stops on the Luas Red Line throughout the full day. In addition the survey counted the number and time of tram arrivals and departures from each of these stops. The survey therefore provided a comprehensive understanding of the use of the system at each stop and in each section of the line. It also identified the capacity available on the trams and the service provided throughout the day.

At the time of preparation (August 2005) it was noted that demand had risen on the Line by approximately 25% from the November 2004 count and thus all count data was factored up by 25% to account for this increase. The factor was applied uniformly across all stops. Thus giving an account of August 2005 patronage.

Planned and potential capacity upgrades to the Red Line were identified and a scenario developed for the maximum capacity that could be provided. This was assessed against projections of required capacity in the future.

12.4.2 Receiving Environment

Study Area

For the purposes of this assessment of impacts on Line A1 on the Luas Red Line a study area was identified and is defined as the Luas Red Line and the future Luas Line C1 extension to The Point. The study included consideration of all existing and currently proposed stops from Tallaght terminus to The Point.

Existing and Proposed Transport Service

The current Luas Red Line between Tallaght and Connolly Station runs a peak hour service of 11 trams per hour both ways between Tallaght and Connolly Station. This service is supplemented in the city centre with a shuttle service operating between Heuston and Connolly Station of 3 trams per hour.

An extension to the existing Red Line to the Point is also under construction and scheduled for completion in 2010. This will extend the Red Line by 1.5km into the North Docklands Area. Additional trams are being purchased to operate the extended line.

Capacity enhancements currently underway on the Red Line will see all of the existing trams increased in length from 30m to 40m. This is expected to increase the capacity on the line by over 30%. In addition, new vehicles are being ordered to allow more frequent services to operate over the extended Red Line.

Prior to the opening of Luas Line A1 it is expected that the extended Red Line will operate alternating services of 6 trams per hour between Tallaght and Connolly and between Tallaght and The Point giving a combined service of 12 trams per hour over the common section of the Red Line. This service will be further supplemented on the city centre section of the line with a shuttle service operating between Heuston and Connolly Station of 3 trams per hour giving a combined service pattern of 15 trams per hour over that section.

12.4.3 Construction Impacts and Mitigation

Construction Impacts

For Line A1, the main impact will arise out of the requirement to modify the existing Red Line infrastructure at Cookstown reservoir, reconfigure the Belgard Stop and construct the physical connection to the Red Line at this point.

The construction of this connection at Cookstown reservoir and the reconfiguration of Belgard will require some disruption of Red Line services and could require trams to temporarily terminate at, for example, Red Cow over a number of weekends. This disruption however would be temporary and of short duration.

Mitigation Measures

In order to mitigate against construction impacts, the selected contractor will be required to prepare and implement a detailed construction plan. This plan will set out a proposed methodology and a programme of works for both during the hours of operation of the Red Line and during out of hours. This will demonstrate the manner in which the Belgard Stop will be reconfigured and how the connection to the existing operational system will be achieved with minimal disruption. The selected contractor will be required to consult with the Operator to make appropriate arrangements for those times where works may impact the service.

12.4.4 Operational Impacts and Mitigation

Operational Impacts

With the provision of Line A1 as a spur to the main Red Line, there are a number of Luas operational patterns which can be considered. These are:

- split the services between Tallaght and Saggart;
- provide a shuttle service on Line A1 between Saggart and the Red Line at Belgard stop;
- provide a shuttle service on the Red Line between Tallaght and Belgard stop; and
- a combination of these services above.

The initial Line A1 peak service pattern envisages 10 trams per hour departing from Saggart, 5 of which will run directly to the city centre with the other 5 operating as a shuttle service terminating at Belgard Stop. On the common section of the Red Line between Belgard and the City Centre there will be a peak service of 15 trams per hour. Additional capacity will be provided between Heuston Station and Connolly Station by a shuttle service in the am peak period with a further 3 departures per hour.

The introduction of Luas Line A1 could thus have a number of operational impacts on the existing and future expanded Red Line. These can be summarised as:

- Increased passenger demand on the Red Line as a result of the wider catchment introduced under the proposed Line A1;
- Reduced service frequency on services between Tallaght and Belgard as a result of splitting services between Tallaght and Saggart;
- Increased passenger demand at Belgard Stop as a result of passenger interchange.

Mitigation Measures

Increased Passenger Demand

Projections of future demand produced by RPA having considered future year land use development in the area suggest that the system will be capable of catering for demand on the extended line with the suggested service pattern.



Reduced Service Frequency between Tallaght and Belgard

Surveys undertaken by RPA indicated that there is currently 80% spare capacity in the section of the Red Line between Tallaght and Belgard stops. This spare capacity is also set to remain with the capacity enhancements proposed for the Red Line as outlined above and which are currently underway. The service frequency could thus more than halve and still cater for demand required at Tallaght.

With the opening of Luas Line A1 a reduction from 12 trams to 10 trams per hour between Tallaght and Belgard stops is more than adequate to meet the required demand. This service could be further enhanced by operating additional shuttle services between Tallaght and Belgard should the need arise.

Increased Demand at Belgard Stop

With the introduction of Line A1 as a spur to the extended Red Line the Belgard stop will become an interchange point between services to and from Tallaght and to and from Saggart. Passenger numbers boarding and alighting services at this stop are thus expected to increase. The proposal to reconfigure the Belgard stop will facilitate shuttle services on the lines and also satisfy passenger stop requirements through sufficient passenger capacity at the reconfigured stop platforms.

12.4.5 Do Nothing Scenario

If Luas Line A1 were not delivered the impact on the Red Line and its future extensions would be:

- No increase in passenger demand
- No change to service pattern

This, however, is offset by a reduced opportunity to travel to and from each stop on the existing and extended Line to the proposed new catchment in Citywest. The introduction of Line A1 thus increases the attractiveness of the system.