

3.0 DESCRIPTION OF THE PHYSICAL CHARACTERISTICS OF THE PROJECT AND OF THE ALTERNATIVES CONSIDERED

3.1 INTRODUCTION

Section 39(1) (d) of the Transport (Railway Infrastructure) Act, 2001 (“the 2001 Act”) (as amended by Section 49(b) of the Planning and Development (Strategic Infrastructure) Act 2006 (see Section 1.3.3 above)) requires that an EIS contains an outline of the main alternatives studied by the applicant and an indication of the main reasons for its chosen option, taking into account the environmental effects.

This chapter deals with the route selection process accordingly. It also describes the main physical characteristics of the Luas Line A1 project and outlines the main activities associated with the construction and operation of the scheme.

3.2 ROUTE SELECTION

The process of selecting a number of feasible route options for consideration; the selection of a range of criteria under which these route options may be analysed; and the selection of the most appropriate route option for progression to railway order application stage commences with the definition of objectives for the scheme.

Having considered current national, regional and local objectives as set out in Chapter 2.0, the objectives which guided the selection of the emerging preferred route for Luas Line A1 were identified as follows:

- The new Luas route should provide a connection to the existing Luas Red Line;
- The new route should serve the Citywest Area, as indicated in both the DTO publication ‘A Platform for Change’ and in the Government’s framework plan ‘Transport 21’;
- The route should attract private sector funding in accordance with Transport 21;
- The new Luas route should allow for a spur to a future orbital Luas/Metro
- The Luas route should comply with policies and objectives contained in the South Dublin County Development Plan 2004-2010 for the Tallaght to Citywest area; and
- The new Luas route should support sustainable development of the region.

3.3 ROUTE IDENTIFICATION

Proposal for Support

RPA entered into negotiations in May 2005 with a consortium of developers interested in developing a spur from the existing Luas Red Line to Citywest to a proposed terminus in Saggart. These negotiations commenced while Transport 21 was being developed and were informed by RPA's existing policy on developing new Luas lines and emerging Government policy in this area. The offer of support being advanced by the consortium was based on a particular route – the one which has been selected as the preferred route by RPA – being used. This was largely because the companies within the consortium would benefit from Luas serving their respective developments. A large part of the land required for that route was already within the control of the consortium.

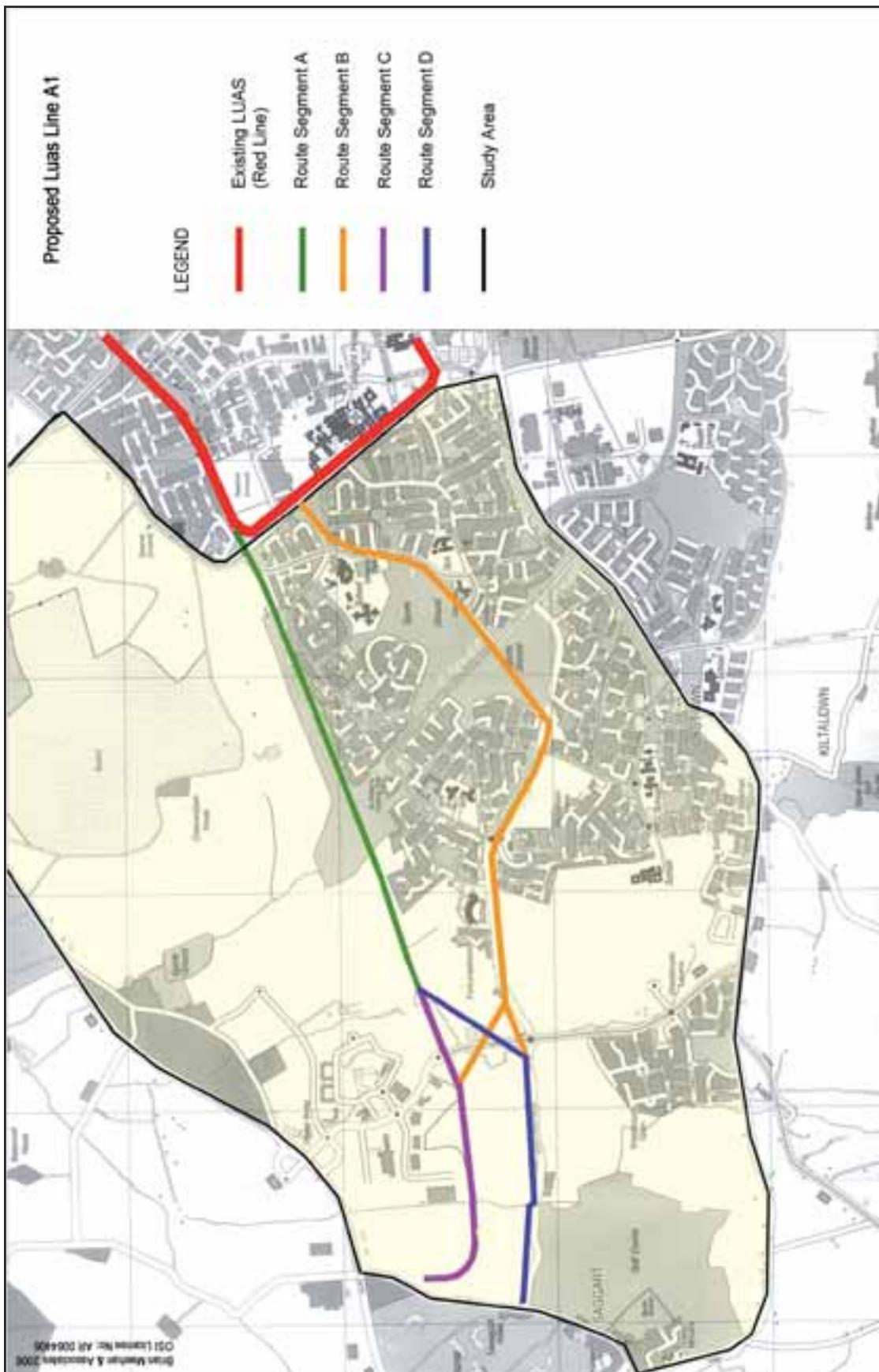
Luas Line A1 Route Option Identification Process

The overall route option identification process for Luas Line A1 began with the identification of a study area that was broadly defined as that area bounded to the north by the Naas Road, to the east by the Belgard Road and Cookstown Way, to the south by the N81 Blessington Road and to the south west and west by Mill Road and Garter Lane. This study area was appropriate because as it generally defines the area commonly referred to as "West Tallaght" and covers all reasonable alternative routes for the proposed Luas Line to Saggart.

Having regard to this study area it was possible to narrow down the assessment to 4 feasible route segments (A,B, C and D) as illustrated on Figure 3.1.

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Figure 3.1: Feasible Route Options



Route segments A and B cover the eastern part of the study area while route segments C and D extend westwards from Citywest Business Park to Garter Lane to serve the western areas. The segments are described as follows:

Route Segment A

Route Segment A diverges from the existing Red Line at the bend in the line between the existing Belgard and Cookstown stops and runs between Belgard Quarry (North) and Fettercairn Road (South) in a westerly direction towards the upper part of Citywest Road. This route passes through a corridor in which it is proposed to accommodate a road known as Embankment Road. The residential areas of Cairnwood, Belgard Green, Fettercairn and Kilmartin lie immediately to the south of the route. The route crosses the approved Outer Ring Road linking the N7 and N81. From here it runs adjacent to the communities of Brookview and Ard Mór before entering Citywest Business Campus.

Route Segment B

Route Segment B diverges from the existing Red Line at Cookstown between Second Avenue and Tallaght Hospital. The route crosses Cookstown Way and runs through public amenity space to the south of Cairn Wood and north of Birchwood Close, past Glennane Park GAA Grounds, before following Cookstown Road as far as Cheeverstown Road (approved Outer Ring Road). From here the route traverses Jobstown Park Sports Ground and follows Fortunestown Way before entering Citywest Business Campus lands.

Route Segment C

Route Segment C runs west crossing to the south of the Roundabout at Citywest Avenue before crossing undeveloped lands to the south of Citywest Business Campus and terminating adjacent to Garter Lane.

Route Segment D

Route Segment D runs parallel to and some 400-500 metres to the south of Route Segment C. The route passes the Citywest Shopping Centre and broadly follows the existing line of Fortunestown Lane, terminating at the junction of Fortunestown Lane and Garter Lane, opposite the Citywest Hotel and Golf Complex. (This segment was extended in September 2006 following discussions as outlined in 3.3 above).

From these viable route segments, four possible combinations were identified:

- Route AC
- Route AD
- Route BC
- Route BD

3.4 ROUTE OPTIONS EVALUATION CRITERIA

The various route options were evaluated against criteria and sub-criteria under the following headings:

- Environmental factors
- Consistency with overall transport policies
- Consistency with local and regional development plans
- Metro feasibility and safety
- Project economics and property acquisition

Part of the Environmental Desktop Study done in 2005 involved deciding which aspects of the environmental impact of the proposed development were likely to be significant and therefore needed to be addressed and which aspects were less likely to be significant and so could be scoped out. Best practice and relevant guidelines on the environmental factors to be considered were taken into account for the purpose of this study.

The environmental considerations that were addressed in the route evaluation process are in line with typical significant impacts and are set out as follows.

- Human beings
- Flora and fauna
- Soil
- Water
- Air
- Noise
- Light
- Landscape
- Material assets
- Architectural/Archaeological/ Cultural Heritage

The nature of the project is such that Impacts relating to climate were not considered to be significant to the assessment referred to above. ‘Climate’ was therefore scoped out and was not addressed in the desktop study.

The route evaluation process also considered other criteria as follows:

■ Consistency with Overall Transport Policies

Consideration was given to Government policy as set out in Transport 21. Regard was also had to “A Platform for Change” and South Dublin County Council’s local transport policy. Public support is an important factor also and that was considered on the basis of feedback from public consultation.

■ Consistency with Local and Regional Development Plans

This was assessed on the basis of integration with local and regional objectives.

■ Metro Feasibility and Safety

This consideration relates to design accommodation consistent with metro or metro compatibility and with reducing any risk of injury or loss of life resulting from transport incidents.

■ Project Economics and Property Acquisition

This is assessed on the basis of cost of the scheme to the Exchequer. In 2004, RPA, as part of a strategic review of possible light rail projects in Dublin, adopted a policy that Luas Line A1 would be developed by RPA only where around 50% of the capital cost of the project could be recovered from the private sector.

3.5 ENVIRONMENTAL EVALUATION OF ROUTE OPTIONS

Initial Environmental Assessment of Route Options

While negotiations with the consortium were at an early stage, an assessment of all route options, without reference to economic factors was undertaken. This took the form of an environmental desktop evaluation carried out by Brian Meehan and Associates in late 2005 of route options to extend the existing Red Line to Citywest. The study took account of the environmental objectives of the previously identified project objectives and also had regard to the work undertaken by WS Atkins.

The four route options set out above were considered and evaluated on the basis of their potential environmental opportunities and constraints

3.5.1 Environmental Issues

Human Beings

It was considered that all route options would have a significant and largely positive impact on human beings.

All routes would facilitate access by Luas to Citywest Business Park and would have a significant positive impact on the future development of Citywest as a major employment node.

Route segment A would provide the most direct access between the existing Luas Line and Citywest Business Park. On the other hand, Route segment B would serve a slightly larger number of the smaller commercial and community facilities within the area. However, it was also considered that a number of community and commercial facilities along Route segment B may be adversely affected in terms of impacts on traffic movement, access, severance and general disturbance by the development of Line A1 along that route. These included St. Marks Community School, McGee Park (St. Mark's GAA Club), St. Marks National School, Springfield Shopping Centre, Sundale Shopping Centre and St. Aidans Community School.

Similarly, in terms of residential areas, while the catchment area for Route Segment B would be slightly greater than Route Segment A, it was considered that the construction and operational phases of the Luas project would result in a greater degree of disruption and loss of amenity, particularly for those residents closest to the proposed alignment. The residents most affected from an amenity perspective would be on Cookstown Road (Cairnwood) and Fortunestown Way (i.e. Russell Square and Glenshane). The feasibility of running Luas Line A1 along Fortunestown Way was also considered to present significant challenges in terms of the available carriageway/ corridor width.

Route segment B, which runs through the centre of large public open spaces at Jobstown Park, could also have resulted in a significant negative impact on these amenity areas in terms of their use as playing pitches and by virtue of severance of pedestrian desire lines running through these green areas.

Route segment D was considered to have an advantage over Route segment C in that it served the existing and planned retail and commercial functions provided at the new Citywest Shopping Centre and adjacent residential areas.

Route segments C and D were located on undeveloped lands and, subject to appropriate design, impact on existing and planned residential communities was not thought to be significant.

Flora & Fauna

The proposed routes were not covered by any designations for conservation of either flora or fauna. Overall, the ecological significance of the study area was considered to be low.

It was considered that impacts on mammals and bird species were unlikely to be significant along any of the route corridors considered.

Soil

It was considered that no significant adverse impacts or insurmountable constraints would exist in terms of soils in the areas covered by the various route segments.

Water

No large water courses or water bodies were noted along any of the route segments and no vulnerable aquifers were identified as underlying the area. A small stream was noted between Fortunestown and east of Citywest Road which would need to be culverted to accommodate Route Segment A.

Air

It was considered that dust related impacts associated with Luas could be kept within acceptable limits and not be an impediment to the construction of any of the route segments considered.

Noise

Noise associated with the construction phase of the Luas would be temporary and intermittent. No significant noise related impacts were anticipated during the operational phase of the proposed development.

All route options ran adjacent to existing and planned residential developments. In terms of impact on sensitive receptors, it was considered that Route segment B would have greatest impact on existing housing areas.

Light

The introduction of Luas would result in an increase in artificial lighting levels within the area. However it was considered that the specific circumstances of each route option would ensure that the long term impact arising from lighting would not be significant.

Landscape

Route Segment A took advantage of the corridor created by the embankment along the southern boundary of Belgard Quarry which separates the Quarry from the residential areas within Fettercairn.

The landscape character of lands bounding Route Segment B was identified as predominantly low density suburban housing. This route segment also passed through large open areas of recreational lands laid out as playing pitches.

Route segments C and D passed through lands that are generally undeveloped towards the western end of the study area. Landscape impacts of either Route Segment were considered to be of no significance.

Material Assets

Route segments A and B would traverse the route of the approved Outer Ring Road and would impact on its operation.

The Embankment Road scheme presented an opportunity for the Route segment A alignment to be accommodated along the same corridor.

Route segment B ran along Cookstown Road, Fortunestown Way and Fortunestown Lane and was likely to negatively impact on movement along these roads as a result of diminished carriageway width.

Route segment C and D would require road crossings at Citywest Road; however no significant adverse effects were considered likely.

None of the public water mains located throughout the study area were considered to constitute a barrier to implementation of any of the routes under consideration.

Route segment A followed the alignment of the ESB power lines to Citywest for a length in the order of 2½ km beyond the junction at Cookstown Way. Further west, Route C also ran close to this high tension power line. Potential constraint issues would need to be discussed with the ESB.

All route segments were considered to give rise to substantially equivalent impacts on the existing Luas Red Line.

Architectural/ Archaeological/ Cultural Heritage

Through an examination of the Sites and Monuments Record (SMR) of the Office of Public Works, the Record of Protected Structures, and the South Dublin County Development Plan (2004-2010) it was considered unlikely that any of the route segments assessed were likely to be constrained by features of a recorded archaeological, architectural or cultural heritage merit.

3.5.2 Findings

The environmental evaluation carried out under these headings in the Environmental Desktop Study found that there were unlikely to be any significant environmental constraints to the development of any of the viable route segments examined.

In deciding between route segments A and B it was found that the development of neither segment would be constrained by significant environmental factors. However, route segment A was considered to be superior on the grounds that it generated the least impact on existing communities while still providing those communities with convenient accessibility to the line. In addition, it lay within a reservation or “green route” which provided an opportunity to accommodate Luas along the same corridor as the approved Embankment Road.

The environmental evaluation also indicated that there were no significant environmental constraints associated with either Route segments C or D. Segment D, however, was preferred on the basis that it did not interfere with the layout of new residential areas north of Fortunestown Lane and it had obvious planning benefits in terms of its ability to serve the new Citywest District Centre.

3.6 NON-ENVIRONMENTAL EVALUATION OF ROUTE OPTIONS

As noted above, RPA had decided that Luas Line A1 would be developed by RPA only where around 50% of the capital cost of the project could be recovered from the private sector.

All route options were consistent with the transit network of Metro and Luas identified by the DTO in ‘A Platform for Change’ and with Government policy under “Transport 21”.

All route options were in accordance with the Regional Planning Guidelines development and public transportation objectives for the Dublin Metropolitan Area. The provision of light rail to Citywest (Tallaght West) is a policy of South Dublin County Council and it was considered that all route options would satisfy this requirement.

All the identified route options could have been designed to accommodate a design consistent with metro upgradeability, although Routes AD and AC could more readily have offered a higher degree of segregation when required. Route AD and Route AC performed equally in terms of safety. Route BC and Route BD performed to a lesser extent in this regard primarily due to more potential for shared running, competition for road space and a higher number of interfaces with other road users.

On the basis of the environmental and non-environmental criteria applied to the route selection decision outlined above, no route option performed substantially better than any other. In other words, when the factors described above are taken into account, the identified routes are largely equivalent.

The availability of financial support for the project along one route was therefore an important, although clearly not solely determining factor, in selecting the route for Luas Line A1. Taking this economic benefit into account is in line with RPA and Government policy as outlined above and in keeping with Environmental Protection Agency guidance in this area.

RPA assessed the financial benefit of the support being offered to the development by the consortium against the possible economic gains that would accrue from a Supplementary Development Contribution Scheme, were one to be made by South Dublin County Council for the project. This analysis concluded that the economic benefits to the project under such a Scheme would not match those being offered by the consortium. In any event SDCC had no plans to implement such a Scheme.

3.7 EMERGENCE OF ROUTE OPTION ‘AD’ AS THE PREFERRED ROUTE

For the reasons indicated above, the overall conclusion arrived at after measured consideration of the feasible route options for this development is that Route Option AD is the preferable route for Luas Line A1.

An environmental assessment of the route did not reveal significant obstacles to the proposed development, the chosen route would serve existing and future communities in the vicinity without unnecessary disruption of those communities during the construction phase and the chosen route would complement associated infrastructural development in the area.

Furthermore, there is a very strong case for the development of Route Option AD under the provisions of the relevant statutory and non-statutory development guidelines, plans and strategies. In addition, it is considered that the proposal is an appropriate response to the need for a modern and sustainable transportation system to facilitate the social and economic development of the Citywest Area.

3.8 AGREEMENT WITH CONSORTIUM

RPA reached agreement with the consortium supporting the development of Line A1 in December 2006. That agreement provides for the consortium being responsible for the delivery of a substantial part of the works for the Line, providing land and making a capital contribution to RPA. All other details are confidential. The arrangement is in line with RPA and Government policy as outlined above and by capturing part of the increase in development potential resulting from the Line represents good value for money for the Exchequer.

3.9 DESCRIPTION OF THE PROPOSED SCHEME

3.9.1 Route Alignment

The proposed Luas Line A1 is approximately 4.2km in length and comprises a double track spur from the existing Red Line at Cookstown to Citywest and is illustrated on Figure 3.2.

The route can be described with reference to 3 sections which are described below.

Cookstown to Outer Ring Road Phase 3 (Section A)

The proposed route diverges from the existing Luas Red Line between the Belgard and Cookstown stops immediately east of the Cookstown Way / Cookstown Road roundabout. The line will run entirely at grade adjacent to the approved Embankment Road Extension and follow a green field reservation adjacent to the communities of Cairnwood, Belgard Green, Fettercairn (proposed stop) and Kilmartin.

Outer Ring Road Phase 3 to Citywest Shopping Centre (Section B)

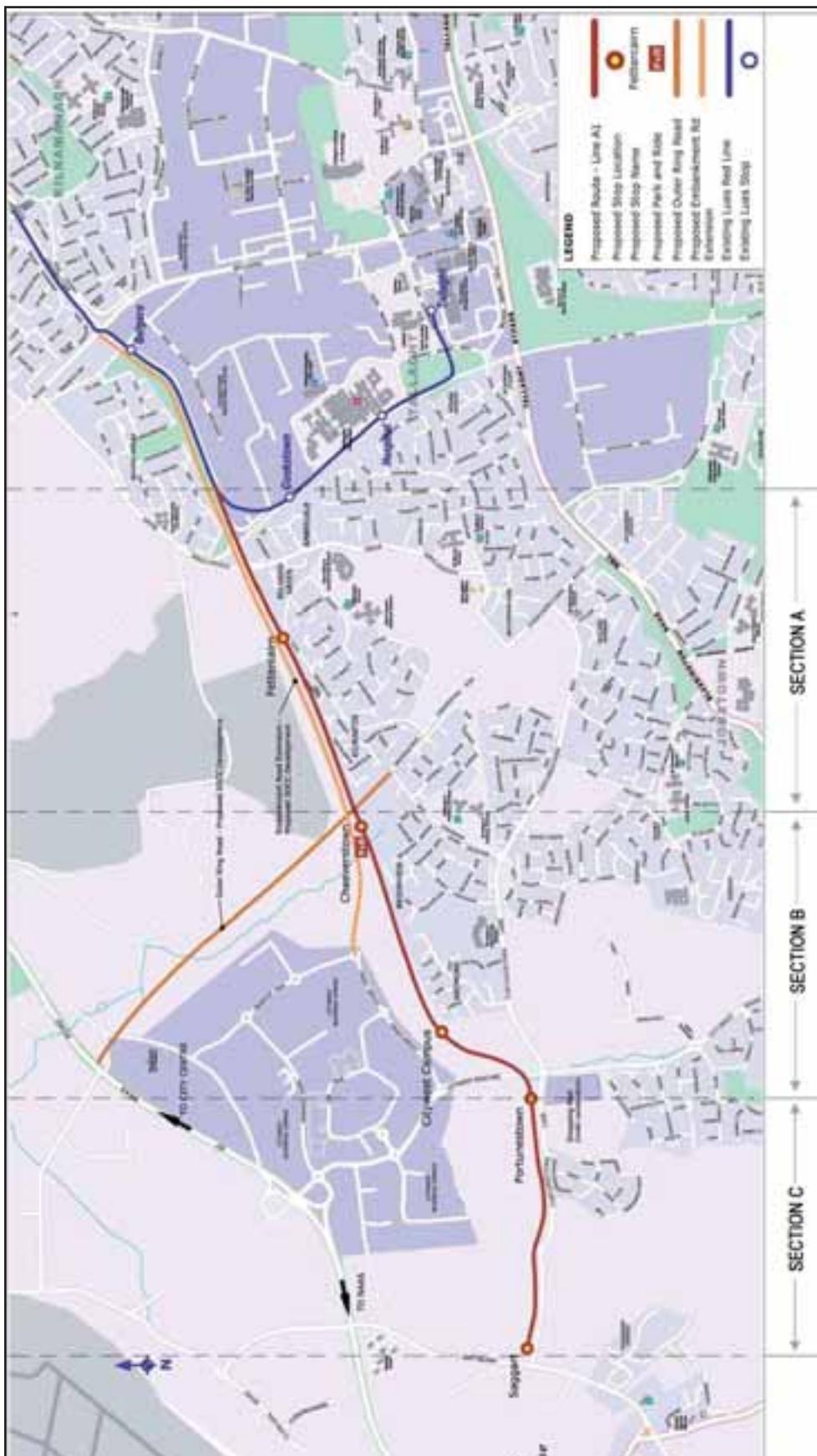
The route crosses the approved Outer Ring Road (Phase 3) linking the N7 and the N81 at grade, arriving at the proposed Cheeverstown Stop, Kiosk and Park and Ride. From here it enters the Citywest Campus running adjacent to the communities of Brookview and Ard Mór and enters the Citywest Campus (proposed stop). It then crosses the N82 at grade to arrive at Fortunestown stop that is adjacent to Citywest shopping centre. A substation is proposed to the west of the Cheeverstown Stop and to the northeast of the Brookview estate within the Park and Ride site.

Citywest Shopping Centre to Saggart (Section C)

From the Citywest Shopping Centre development the route follows Fortunestown Lane, which runs to the north of the Carrigmore and Carrigmore Crescent residential developments, to terminate east of the junction between Fortunestown Lane and Garter Lane at the Saggart Stop (proposed last stop). A second substation is proposed to the north of the proposed Saggart Stop.

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Figure 3.2: Proposed LUAS Line A1 Route Alignment



3.9.2 Stops

The rationale behind the Luas Line A1 alignment and the provision and location of stops along the route is to provide a fast and efficient public transportation service that will facilitate existing and planned new residential and employment related uses, and which will allow an overall change in accessibility and mobility in the catchment area which it is planned to serve. Stops constitute the points of access for passengers to the proposed Luas Line A1 alignment and ultimately to the overall Luas network. The choice of stop locations was determined by the catchment accessibility (which determines the actual number and location of stops along the proposed alignment) and mobility (which looks at the target population, network links and interchanges). The consideration of stop locations also took account of the existing and planned future development of the catchment area of the Line A1 alignment. Thus stop locations were considered in relation to how they can serve existing development and integrate into the planned future development of the catchment area. In addition, some improvements/upgrading are proposed at the existing Belgard Luas stop as part of the current application.

A total of 5 new stops are proposed as part of the Luas Line A1 project as follows:

- Fettercairn
- Cheeverstown
- Citywest Campus
- Fortunestown
- Saggart

The new stops will be of a similar layout to the existing Red and Green line stops. Each of the proposed stops will comprise raised platforms approximately 0.28m high and 40m long, with a 6m ramp at either end where required (passive provision is made in the alignment design for 90m long platforms if required). The platforms will be a minimum of 3.3m wide and will be situated on either side of the tracks (lateral platforms). These allow for level boarding and alighting by all passengers. Cycle parking facilities will be provided at all stop locations. Where possible and in consultation with South Dublin County Council RPA will progress opportunities to strengthen pedestrian accessibility from established communities to the proposed stop locations.

Fettercairn Stop

It is planned to locate the first stop to the north west of Belgard Green housing estate and to the north of the residential area of Fettercairn, along the approved Embankment Road Extension. The stop will be located adjacent to a minor junction linking the Embankment Road Extension to Fettercairn Road, thereby providing access to and from the surrounding residential areas. The Fettercairn Market Square and the expanding civic and community facility uses at Fettercairn Community Centre and Youth Horse Project also favour the establishment of a stop at this location.



Cheeverstown Stop

Cheeverstown stop is planned to be located to the south west of the proposed junction between the Embankment Road Extension and the Outer Ring Road Phase 3. Citywest Business Campus is located to the north west of this stop. The stop is also situated to the north east of a number of residential communities, including Brookview housing estate. Opportunities for strengthening pedestrian connectivity between Brookview and the proposed Luas stop at Cheeverstown will be explored in consultation with SDCC. There is also a 'Park and Ride' facility located adjacent to this stop. Access to the Park and Ride will be provided from the approved Embankment Road Extension, the Outer Ring Road and Citywest Avenue. Provision is also being made at the Cheeverstown Stop for a retail kiosk for the benefit of Park and Ride users.

Citywest Campus Stop

This stop is planned to be located to the north of the National Digital Park, to the south of Citywest Avenue and to the east of the N82 Citywest Road. The stop is situated centrally to serve the the Citywest Business Campus, which is located to the north and to the National Digital Park and Magna Business Park to the south. The Citywest Campus Stop is also located immediately adjacent to the housing estate of Ard Mór. The proposed location for the Citywest Campus Stop is therefore strategically placed to allow for the future integration with both existing and proposed developments within Citywest Campus. Opportunities for strengthening pedestrian connectivity between Ard Mór and the proposed Luas stop at Citywest Campus will be explored in consultation with SDCC

Fortunestown Stop

It is planned to locate the Fortunestown Stop along Fortunestown Lane, immediately adjacent to the new Citywest District Centre which includes the newly opened Citywest Shopping Centre. The stop is also located adjacent to the residential area of Carrigmore. Fortunestown stop will serve the existing and planned residential communities.

Saggart Stop

Saggart stop, which is the proposed terminus is planned to be located on Fortunestown Lane, east of the junction of Fortunestown Lane and Garter Lane. This stop is located in close proximity to Citywest Hotel and Golf Course and existing residential communities at Garter Lane. The recent rezoning of lands in this area to provide for new Residential Communities in accordance with approved Area Plans (see Section 2.4.4) will ensure continued development in a sustainable manner.

Reconfiguration of the existing Belgard Stop

It is proposed to reconfigure the layout of the existing Belgard Stop to provide for an additional track and associated platform alterations. This will include the installation of a new stop canopy spanning the new island platforms. The new trackwork arrangement will allow for the arrival, departure and stabling of trams running between Belgard and Saggart.



3.9.3 Park and Ride

A 310 space Park and Ride facility is planned in the vicinity of Cheeverstown Stop. The facility will be situated to the north and south of the proposed A1 alignment with some 160 spaces to the north and 140 spaces to the south. The location at Cheeverstown was chosen based on upgrades to the existing road network in the Tallaght West Area (approved Embankment Road extension and the Outer Ring Road Phase 3) and the availability of lands with otherwise very limited development potential in this area.

The DTO in their Rail Park and Ride Strategy for the Greater Dublin Area propose a methodology to ascertain the suitable use and size of rail based Park and Ride. The application of that methodology suggests that the P&R site at Cheeverstown would best serve local P&R needs and should thus be sized to accommodate normally no more than 300 parking spaces subject to the capacity available on the local and surrounding road network.

The preferred function of a Local Park and Ride site as defined by the DTO is, 'to serve residents who live in the vicinity of the station, but who are beyond the natural walking catchment, and are not served by feeder bus services accessing the station or who are mobility impaired.' In order to insure that the Cheeverstown Park and Ride operates in this manner and does not attract unnecessary local car trips, it is proposed that appropriate P&R charging will be introduced.

The P&R at Cheeverstown is proposed over 2 separate portions, one to the north of the alignment and the other to the south. The Park and Ride portion north of the alignment is situated between the Luas track and the Embankment Road. Given the cost of lands in general, surface park and ride utilisation represents a very poor value for money. In this instance however such is not the case. The land is practically undevelopable due to a wayleave of 23 metres either side of the existing overhead double circuit 110kV lines.

The Park and Ride portion south of the alignment utilises a similar wayleave, this time required as a result of a watermain. As with the north portion, this 17.3m wayleave renders these lands undevelopable. Park and Ride is thus an ideal use for this land.

This facility will prove to be very attractive to commuters approaching the city via the N7 and the N81, offering savings in their journey times particularly during peak hours.

The Park and Ride will incorporate CCTV coverage and lighting. The lighting will incorporate anti-glare hooded fittings.

3.9.4 Landscaping/ Boundary Treatment

Due to the extent of the permanent land take, soft landscaping directly associated with the proposed Luas Line A1 will generally be confined to a strip of low level planting outside of the swept path of the trams. Hard landscaping will include the surfacing of the track bed and the completion of the civil works at the stop platforms. Landscaping will commence on completion of the track laying and erection of the overhead lines poles. Additional landscaping outside the scope of this project will be carried out as part of the development of adjoining zoned lands and as part of the Outer Ring Road Phase 3 and Embankment Road Extension proposals. Soft landscaping for boundary treatment will be provided at the Park and Ride site.

3.9.5 Substations

The provision of substations is an essential component of the proposed Luas Line A1 alignment as they are the primary source of power for trams and stop facilities. A power simulation for the proposed Luas Line A1 alignment carried out by the RPA concluded that 2 substations would be required to serve the route in addition to the existing substation at Cookstown. This will be sufficient to serve the proposed Luas Line A1 alignment in the event that one of the substations malfunctions or must be shut down for essential maintenance works.

Another consideration is that substations are constructed at locations which will ensure minimal visual and noise impact and intrusion of the existing landscape. Generally substations are sited in proximity to the planned Luas Stops or infrastructure, in order to minimise the impact of the planned new substation on the existing environment.

Another consideration is that substations are constructed at reasonable cost at locations which will ensure the minimal visual and noise impact and intrusion of the existing landscape.

In reference to the above factors, the final proposed substation locations are:

- Immediately proximate to the Saggart Stop
- Immediately proximate to the Cheeverstown Stop and proposed Park and Ride

An existing substation at Cookstown will also serve Luas Line A1.

3.9.6 Limits of Deviation

In constructing or maintaining any of the light railway works RPA may:

- (1) (a) where such works are situated in a public road:
 - (i) deviate laterally by an amount not exceeding 2.5 metres from the lines or situations shown on the deposited plan
 - (ii) deviate vertically by an amount not exceeding 1 metre upwards or downwards from the levels shown on the deposited plan
 - (iii) deviate longitudinally by an amount not exceeding 20 metres in respect of any light rail work.

- (1) (b) where such works are situated otherwise than in a public road:
 - (i) deviate laterally by an amount not exceeding 5 metres from the lines or situations shown on the deposited plan
 - (ii) deviate vertically by an amount not exceeding 2 metres upwards or downwards from the levels shown on the deposited plan
 - (iii) deviate longitudinally by an amount not exceeding 20 metres in respect of any light rail work.

The purpose of these powers of deviation is to facilitate onsite construction and allow a limited degree of flexibility to react to on-site circumstances which may be unforeseeable at this stage.

3.10 CONNECTION TO THE EXISTING RED LINE

3.10.1 Capacity Considerations

In 2006 the Red Line carried 2,500 persons past the busiest point in the busiest peak hour. The maximum lineflow demand on the extended Luas Red Line is forecast to be approximately 4,600 persons per direction in the peak hour in 2015, at the busiest point (between Heuston and Connolly Station). The demand in the same period on Luas Line A1 is forecast to be approximately 1,600 persons per direction per hour.

Luas Line A1 is being designed to provide an initial capacity of 3,100 persons per direction per hour past any point on the section between Saggart and Belgard Stop. This is on the basis of 310 passengers per 40m tram. This is well in excess of forecast demand and provides scope for considerable growth into the future.

As regards the overall Red Line the capacity provision on the shared section of the Red Line between Belgard and Heuston station will be 4,650 persons per direction per hour increasing to 5,580 persons per direction per hour in the section between Heuston and Connolly Stations. This is also in excess of forecast demand and provides considerable spare capacity to allow for future growth.

The initial Line A1 peak service pattern envisages 10 trams per hour departing from Saggart, 5 of which will run directly to the citycentre 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. This is against the current Red Line service of 11 trams per hour. Additional capacity will continue to be provided between Heuston Station and Connolly Station by a shuttle service with a further 3 departures per hour in the am peak period.

The capacity of the system can be upgraded by reducing the headways or increasing the tram lengths or by a combination of both. Services are currently operating at frequencies greater than 12 trams per hour in the peak period on the Green Line and on the city centre section of the Red Line. RPA are therefore confident that local authority agreement to reduced headways can be secured should demand dictate.

RPA is developing an operating scenario which is considered capable of meeting future demands from both Tallaght and Citywest and will provide sufficient flexibility in terms of relative variations in such future demands. RPA acknowledges that Tallaght will continue to be the primary focus of Luas services on the suburban end of the expanded Red Luas Line.

3.10.2 Cookstown Delta Junction Options

The selection of the chosen route option for the Citywest extension means that the obvious point of connection or tie-in to the existing Red line will be in the Cookstown area. Considerable liaison took place with SDCC planners and road designers in order to determine the optimum detailed alignment for the connection. Consideration was given to improvements to the road network in the area, the utilities and planning objectives as well as the safety of both road and rail users. A number of options in terms of junction type and operational flexibility were considered. Based on possible future demand for a direct service from Saggart to Tallaght Town Centre, SDCC's land use and transportation planning requirements in the general area and the emergence of a preferred route for Metro West, the feasibility of a future delta junction at Cookstown was examined and confirmed. While it is not proposed to construct this junction at this time, the future provision of a Delta arrangement will be preserved in the scheme design and, as agreed with SDCC, through the imposition of planning conditions on future development proposals,

Luas Line A1 will allow for passengers to travel between Saggart and Tallaght using a shuttle service. This will require an interchange facility that will be provided for at Belgard Stop. Passengers from Saggart wishing to travel to Tallaght would be required to change to trams at Belgard.

A proposal for a new layout for Belgard stop is included as part of this railway order application.

3.10.3 Possible Future Connections

The Dublin Transportation Office (DTO) published strategy “A Platform for Change” envisions an extensive rail based network comprised of Luas, Metro and heavy rail with easy interchange between all 3 modes. DTO’s Strategy considered an extensive Luas and Metro network planned for the Dublin area in the long term allowing for a spur from the Orbital Metro line from the Cookstown region to Tallaght West/Moneen Cottages located to the northwest of the Line A1 study area. In designing Line A1 and specifically the location of the terminus stop at Saggart, the potential to extend the line northwards to Tallaght West/Moneen Cottages is preserved.

3.10.4 Metro Upgradeability

One of the project objectives is that the new route should allow for a spur to Metro West for which the selection process for an emerging preferred route is now concluded. Line A1 will be designed to operate initially as a spur to the existing Luas Red Line and contains no features which would prevent an upgrade to Metro West compatibility taking place, if necessary.

Some of the critical design considerations for Line A1 are:

- The proposed structures gauge can accommodate Metro West vehicles.
- The use of vehicles with low floor is assumed. This is the same as the design of the Luas Red and Green Lines and the proposed Metro West.
- All the platforms are designed to cater for 40 metre long vehicles. Passive provision for 90m platforms is being preserved in the alignment design to allow metro upgradeability.
- Protected running can be provided for along the entire length of the route. This means that the tramway has its own right of way and road traffic only crosses it at junctions.

3.11 CONSTRUCTION OF THE SCHEME

3.11.1 Construction Programme

In the construction of a light railway system there is generally a particular sequence of activities to be followed. Due to the linear nature of the construction site it is possible for certain activities to overlap with others or to run concurrently. In general the construction works will involve the following stages:

- establishing site offices, compounds and security
- site preparation
- utilities diversion
- installation of the trackbed and rails
- installation of electrical and operating equipment
- the development of stops and associated equipment
- finishes to surfaces and soft landscaping.

The activities described here should be regarded as typical of the construction work phases to be undertaken along the route. A detailed programme and schedule of works will be developed prior to the commencement of work on site and is dependent on more detailed design work, which is ongoing, and finalisation of work methodology with the appointed contractors.

Until contractors have been formally appointed to undertake the construction of the proposed Luas Line A1, a precise programme cannot be established. For the purposes of this EIS the following assumptions can reasonably be made based on the required end date for completion of the works and the commissioning of the system, and on the basis of experience gained on the Luas Red and Green Lines and Lines B1 and C1 which are currently under construction.

- Work will start simultaneously at a number of locations.
- Duration - overall about 28 - 30 months.
- A period for testing and commissioning the system is also required.
- Trams will be supplied during the construction period.

3.11.2 Site Preparation / Site Compounds

The first activities noticeable on site following the mobilisation of the appointed contractors will be the establishment of site offices and compound areas and the commencement of initial site preparation. This will involve removal of superficial debris and clearance of scrub vegetation, trees and hedgerows along the line of the proposed route. Existing derelict structures along the route corridor will be demolished and removed. Sites will be fenced off and appropriate signage erected where appropriate.

Two construction compounds are to be provided for storage of materials, plant and equipment and for site offices. The location of the site compounds is shown on Figure 3.5, with one located at the Park and Ride site, west of the Outer Ring Road Phase 3 within Citywest Business Campus and the other on lands north of Fortunestown Lane between the proposed Fortunestown and Saggart stops. These fenced compounds will each be approximately 80m x 40m (approximately 0.32ha) in extent.

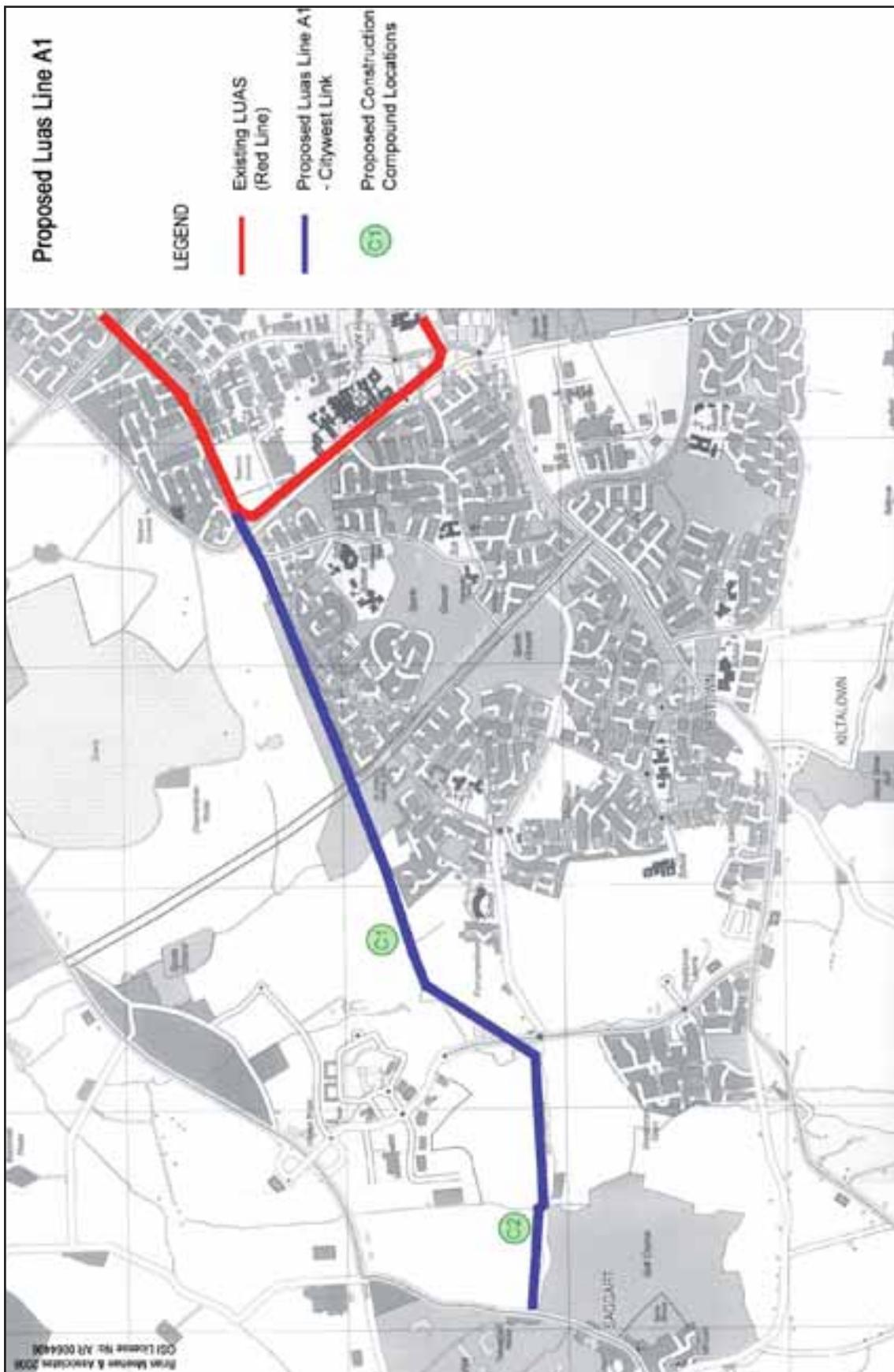
Construction materials will be stored at these compounds and delivered to the site as required. For the storage of materials and/or substances that are potentially hazardous, measures will be put in place to ensure these materials are securely and safely stored. Access to the compounds will be restricted to site personnel and authorised visitors. Chemical agent risk assessments will be completed on site.

The contractor will require site access at all times. Site access will be restricted to construction personnel only.

The haul road between the Cookstown Roundabout and the N82 (Citywest Road) will run parallel and north of the proposed Luas alignment, where possible. West of the N82 on the section from Fortunestown to Garter Lane, the haul roads will, where possible, run adjacent to the line. However use of segments of Fortunestown Lane may also be necessary due to on-going developments along the route which may prohibit the establishment of a dedicated haul route.

Chapter 3

Figure 3.3: Proposed Location of Site Compounds



3.11.3 Utility Diversions

Prior to the commencement of construction, as part of the design process, utilities (and other sub-surface components) that may conflict with the Luas trackbed and overhead conductor systems are identified. A combination of existing utility drawings, trial holes and radar mapping was used to identify all underground services. Once identified and located, the level of conflict was assessed and mitigated where necessary. This work will inform the detailed design of the system and in particular the utility design.

In order to ensure that the operation of the proposed Luas Line A1 is not affected by future utility maintenance or diversion activities, existing utilities will be diverted clear of the works and/or beneath the proposed line where appropriate. Generally where existing utilities are beneath the proposed line they will not be relocated, rather they will be exposed, lowered if necessary and / or protected to ensure their future integrity beneath the proposed line. In addition, there may be a requirement to lay an additional length of pipe in parallel to the existing utility to allow for future replacement. For the proposed Luas Line A1 these works will involve the protection of existing watermains, foul and storm water sewers, gas mains and telecommunication cables.

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. These works will form part of the Line A1 Railway Order.

Other works associated with utility diversions are within the scope of major renewals or diversions which utility undertakings expect to undertake from time to time. All utility diversions will be completed in conjunction with the relevant utility provider and will be in compliance with the requirement and relevant codes of practice.

Public utilities are examined in greater detail in Chapter 12.0.

3.11.4 Principal Construction Activities

Track bed construction will generally entail the excavation of a 6.0m to 9.0m wide trench of varying depth (from 0.8m-1.2m) just below the existing ground level. Typical trackbed widths will be 6.2 metres on straight alignment, or 6.6 metres where the trackbed contains axial poles. On curves the distance between tracks will be slightly wider in order to accommodate the swept path of the tram. In carrying out these excavations, topsoil will be stripped separately and stockpiled for later re-use. Upon completion of the excavations to the required level, protection measures to the existing underground services will be carried out and works will commence on installing the required surface water drainage along the length of the line. The open ditch to the west of the existing ESB substation (located north of Ard Mór Estate) will be culverted and backfilled as part of the drainage works. On completion of the drainage works and any underground ducting works that are required, the track bed formation will be compacted and levelled with a layer of granular fill.

Three different types of track bed are proposed along the length of the line, ballasted track, embedded track and slab track. The engineering and functional requirement of a particular location will dictate the type of track bed required and can be summarised as follows:

Ballasted Track

In the case of ballasted track, upon completion of the granular fill, the bottom layer of ballast will be placed and compacted. The railway sleepers are subsequently laid on this layer of ballast. When the sleepers are in place the rails are then fastened. The tracks are then aligned and levelled and the top layer of ballast is placed between the sleepers and compacted. The rails are then welded and stressed and the final layer of ballast placed. A final compaction is then carried out using a rail mounted machine to achieve the final track geometry.

Slab Track

The sequence of preparatory works for the slab track is similar to ballasted track. Thereafter a concrete slab with reinforcement is formed and a proprietary system is used to fix the rails directly to the reinforced concrete slab.

Embedded Track

In the case of the embedded track the rails are cast into concrete slabs constructed in three phases. Firstly a reinforced concrete base slab is constructed, the rails are then set to the correct line and level and partially encapsulated in a second pour of concrete. Finally the top layer is placed that generally comprises patterned / imprinted concrete or in some cases asphalt.

As the track work proceeds, works will also commence on the construction of the five new tram stops at Fettercairn, Cheeverstown, Citywest Campus, Fortunestown and Saggart.

The installation of the overhead lines and the power supply system will occur once the track bed has been completed. The support pole foundations will have been installed in tandem with, and fixed to, the track bed foundation.

3.11.5 Construction Material Requirement

Excavated material will where possible be stored on-site and reused and therefore there is unlikely to be any requirement for importation of soil for the project.

The proposed works will require construction materials to be imported to the site. In general, the materials needed for construction of the trackbed are those regularly used in civil engineering infrastructure projects, such as major roads and construction projects, and do not raise specific environmental issues in terms of sourcing.

All construction activity typically gives rise to amounts of nominated spoil. Excavated materials from the trackbed will vary in their composition depending on their source. For track bed construction, excavated material will be reused where appropriate. Inert materials with some engineering strength (e.g. brick and stone rubble, ballast etc,) would be suitable for disposal in a land reclamation project if one were proceeding at the same time as the proposed Luas Line A1 alignment. Waste Management is addressed in Chapter 15.0.

3.11.6 Archaeology

There is a possibility that construction works associated with the proposed track laying and the relocation of services, especially in areas of archaeological potential (described in Chapter 7.0), will reveal archaeological soils, features or stray artefacts. In order to ensure the recognition and appropriate recording of such features, a project archaeologist will be appointed to the project team.

Any archaeological testing and or monitoring will be carried out under licence from the Department of the Environment, Heritage and Local Government under the National Monuments Acts. The archaeologist will be responsible for liaison with the relevant authorities and with the Local Authority, and will keep them appraised of the development as it progresses. Any archaeological finds or features revealed will be reported to the Department and to the National Museum, as required under the National Monuments Acts.

3.11.7 Traffic Management

As part of the construction works, the proposed line is required to cross the existing N82 Citywest Road and also the existing Cookstown Road and Cookstown Way. The route also crosses the approved Outer Ring Road (Phase 3) and construction of this route is underway in advance of the construction of the proposed

Luas Line A1. Provision for Luas infrastructure is being made by the local authority in the construction of this key road crossing to mitigate construction disruption once this road becomes live to road traffic. It is also noted that the existing road layout of the Cookstown Road junction will be subject to change as part of the approved Embankment Road Extension project. Again it is likely that the construction of this revised junction will be completed in advance of the construction of the proposed Luas Line A1 and provision may also be made for Luas infrastructure if considered appropriate.

To address issues which may arise during the construction phase a Traffic Management Plan will be formulated and implemented in advance of construction works. This will be carried out in order to minimise disruption to the general public. Construction impacts on traffic and transportation are also considered in Chapter 13.0 of this EIS.

Detailed proposals for traffic diversion and traffic management during construction, taking due cognisance of the movement of construction vehicles, will be developed in conjunction with South Dublin County Council. Where permanent changes are required, these will be introduced as early as possible. Advance warning signage as well as local signing of diversions will be introduced in advance of the works.. Luas Line A1 works will be coordinated with other important local developments including the construction of the Embankment Road Extension.

3.11.8 ENVIRONMENTAL MANAGEMENT

Environmental risks associated with construction and mitigation measures required to mitigate environmental impacts as detailed in this EIS, will be managed through the implementation of an environmental management system for the construction phase.

3.12 OPERATION OF LUAS LINE A1

3.12.1 Service Patterns

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

- split services between Tallaght and Saggart
- shuttle services between Saggart and Belgard
- shuttle services between Tallaght and Saggart
- combination of split and shuttle services.

Luas Line A1 will allow for passengers to travel between Saggart and Tallaght using a shuttle service. This will require an interchange facility that will be provided for at Belgard Stop. Passengers from Saggart wishing to travel to Tallaght would be required to change trams at Belgard.

A proposal for a new layout for Belgard stop is included as part of this railway order application.

While the final overall operating timetable for the Red line, including both the Line A1 extension and the Docklands extension, has not been finalised, it is envisaged that the peak period service will consist of a service frequency of 15 trams per hour from the city centre to Tallaght / Saggart.

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.

One of the main reasons for the success of the existing Luas lines is the high service frequency / short wait customer experience. While the initial demand forecasts for the proposed extension would not warrant a high frequency service, it is considered very important that the public perception of the underlying fundamental reasons for the success of Luas are not undermined or diluted. It is believed that the proposed peak period service pattern to Saggart strikes a reasonable compromise between demand, frequency and direct / shuttle services.

These assumed service patterns may be altered to achieve the optimum operating pattern from both termini based on customer demand.

In summary Luas Line A1 is being provided with spare capacity to maintain the quality of service, to allow for future growth in demand which may result as a consequence of transport integration with new Bus and Rail services, increased development in the area, expansion of the Luas network and other transport related measures. Luas Line A1 is also being designed to be compatible with Metro West.

3.12.2 Luas Trams

The type of tram utilised on the proposed Luas Line A1 will be similar to the 40m trams in use on the existing Luas Red line.

Each tram will have the capacity to accommodate 310 passengers, based on 5 standees per m². Each tram will have a driver's cab at either end and will be bi-directional. It will have a low level floor for most of its length to facilitate level boarding for the mobility impaired.

The general characteristics of the trams are as follows:

- width 2,400 mm
- length (single unit) (approximately) 40,000 mm
- height (pantograph not included) 3,400 mm

The vehicle width is such that on straight track when allowance is made for dynamic movement and the necessary safety clearances, the effective width occupied by double track is 6.2m. Where there are overhead contact system poles between the tracks, the width occupied increases to 6.6m.

The main performance characteristics of the trams are presented below.

Table 3.1: Performance Characteristics of the Luas

Performance topics	Characteristics
Maximum speed	70 km/hour
Acceleration	1.2 m/s ²
Deceleration	1.2 m/s ²

3.12.3 Maintenance and Storage of the System

All administration, system control and maintenance for the proposed Luas Line A1 will be undertaken at/from the Red Cow Depot. All Line A1 trams will be stabled at the Red Cow Depot.

3.12.4 Power Supply and Signalling

The trams operate on a 750 volts direct current power supply. The ESB 10 kV alternating current supply will be transformed and rectified to direct current at substations located at intervals along the line. Provision is made for 2 substations along the route, located in the vicinity of the Saggart and Cheeverstown stops. Electricity is supplied to the trams via overhead power lines, at a minimum height of 5.2m above the ground, supported by poles positioned either alongside or between the tracks. At road crossings, the minimum conductor wire height will be 6.0m.

Power will be supplied to the overhead power lines via multi-tubular cable ducts which generally will be located adjacent to one edge of the trackbed foundation; on the other side of the trackbed will be a parallel set of ducts carrying communications and signalling cables. The main power supply line from the substation is located underground and is connected to the contact wire at intervals. Thus, the size of the conductor wire is minimised. Synthetic cables which have high insulating properties will be used to support overhead wiring. This reduces the number of insulators required.

Provisions will be made in the detailed design of the power supply system to cater for extra wires if required for a higher power demand in future.

The new substations will be located to the north west of the Cheeverstown Stop/Park & Ride and one at the Saggart Stop. In addition, there is a requirement for Overhead Conductor System (OCS) Lineside Feeder Boxes. These are used for interconnection and, in some cases, for the switching of parallel feeder cables supplying the OCS. The number of parallel feeder boxes will depend on the final design but it is estimated that a maximum of 9 feeder boxes will be utilised for Luas Line A1.

Technical cubicles are located at the tram stops. These contain the equipment relating to each individual tram stop such as electrical power supplies, telecommunications equipment, cable transmission network (CTN) equipment and automatic vehicle location system (AVLS). The cubicles contain the telecommunications equipment for the fixed equipment at the tram stop such as passenger information displays (PIDs), public address system (PA), etc.

3.12.5 Luas Operating System

The existing control system for the operation of the Luas Red Line that is located in the main control room at the Red Cow Depot will be extended to Line A1. The system will be designed so as to provide a safe, reliable and punctual public transport system. All the trams will be in radio contact with the main control centre and a computerised display will be available to the controllers, showing the position of the trams on the line at any point in time.

A monitoring system will be provided to check on the status of the power supply system. This will provide information on the critical elements of the power supply and the controller will grant isolations of the overhead power systems for maintenance and in emergencies. A video monitoring system of stops, the Park and Ride and key junctions in the system will be located in the control room. Ticket vending machine, ticket validators and real time passenger information displays will be located on all stop platforms.

The trams will be driven on a line of sight basis in a similar fashion to the existing Red Line. At certain locations where trams need to change tracks, such as at the connection to the existing Red Line, the terminus and the revised Belgard Stop, a localised signalling system ensures that trams can operate safely over points and to ensure that no conflicting movements between trams can occur. In these locations the points will be motorised.

An important element in the control system is its interface with any planned traffic lights along the route. The system will be designed in conjunction with South Dublin County Council to ensure a high level of priority for the trams through the various junctions, ensuring that trams are not kept waiting at red lights. This is an important factor in determining the operating speed and the attractiveness of the overall system to passengers but must of course be implemented with due regard for a balanced road traffic management system.

The trams are equipped with heating, ventilation, security cameras and a public address system, allowing communication between central control and drivers and passengers. The trams are also fitted with a driver vigilance detection system. This ensure that a tram comes to a stop in the event that the driver becomes incapacitated. There are electrical safety loops which provide the continuity between coupled trams, utilised for the rescue of a failed tram. The exterior signalling and lighting are by standard means (lights, bell, etc.). The tram cannot start with doors opened or unlocked. Doors are equipped with a door obstruction sensing system fitted to the leading edges. An emergency handle stops the vehicle if activated while the vehicle is departing from a stop. If it is activated between two stops, a signal is transmitted to the driver who has the responsibility to respond. An emergency panel, when activated, gives a signal to the driver and opens communication with passengers through the PA system.

Passive Safety is an important feature of the Luas system. The trams are equipped with the following fittings:

- body shell designed to resist a compressive force of 200 kN,
- laminated windows and doors,
- resilient buffers.

3.12.6 Access for Mobility Impaired

Accessibility is an important operational feature of Luas. The tram must be fully accessible for disabled people. In order to satisfy this objective the internal floor level is maintained, for at least 70% of the total length of the vehicles, at a maximum height of 350 mm from the rolling surface. The exchange rate is at least 20% (the exchange rate is the ratio of total door width to total length of the tram). The minimum width for a double leaf door is 1,300 mm.

3.12.7 Security

A video security monitoring system at the proposed stops, the Park and Ride and at key junctions in the system will be displayed at the control centre.

3.12.8 Ticketing Arrangements

All stops on the proposed Luas Line A1 will have ticket machines that accept coins, notes and credit cards. Existing Luas Red and Green Line ticket options include single, return and one day Luas only tickets. For Luas only or Luas + Bus ticket options include a seven day, monthly and annual journey ticket.

Other aspects of existing ticketing arrangements include:

- Tax-saver commuter tickets;
- Student travel (with identity cards);
- Pre-paid tickets available from ticket agents at retail outlets.

The Luas Smart Card will be available for use on the proposed Luas Line A1. This is a permanent card the size of a credit card which allows Luas customers to pay-as-they-go when they travel on Luas.



3.12.9 Lighting

Public lighting will be provided at all stop locations by means of combined Overhead Conductor System (OCS), poles and public lighting to light the platforms and crossing points. The Park and Ride facility will use lighting masts that will incorporate anti-glare hooded fittings. .

Public lighting will be provided along the Embankment Road extension and considering the close proximity to the A1 alignment there will be a certain amount of overspill onto the alignment. The South Dublin County Council footpath and cycleway to the south of the alignment will also be lit.

From the Citywest Shopping Centre to Saggart the alignment will be provided for by the existing public lighting along Fortunestown Lane.

Public lighting is assessed in Chapter 5.0 Visual / Landscape.

3.13 SAFETY

All construction work in connection with Luas Line A1 will be carried out in accordance with relevant Health and Safety legislation and best practice, with particular regard to:

- Safety Health and Welfare at Work Act 2005; and
- Safety Health and Welfare at Work (Construction) Regulations 2006.

The planning, testing and commissioning and operation of Luas Line A1 will be carried out in accordance with the Railway Safety Act 2005 and with consents and directions issued by the Railway Safety Commission under that Act. A safety management system or safety case is in place for the operation of the Luas Red and Green Lines and it will be extended to Luas Line A1 when the Line is deemed acceptable to the Railway Safety Commission.

4.0 SOCIO-ECONOMIC AND COMMUNITY

4.1 ASSESSMENT METHODOLOGY

Section 39 (2)(b)(i) of the Transport (Railway infrastructure) Act 2001 requires the assessment of likely significant impacts on ‘human beings’ and requires that proposed developments are examined in terms of their impacts on people. Potential impacts to people arising from the proposed Luas Line A1 include noise and dust nuisance, social disruption and severance, improved accessibility and travel time, urban regeneration, employment and indirect job creation and improved or reduced pedestrian and vehicular safety. Most of these issues are addressed in specific chapters within this EIS including Chapter 10.0 ‘Air Quality and Climatic Factors’, Chapter 11.0 ‘Noise and Vibration’ and Chapter 13.0 ‘Transportation’.

This Chapter provides an appreciation of the social and economic context within which the proposed Luas Line A1 is to be developed and provides an assessment of these issues. Key measures to reduce impacts upon the community have been identified.

The assessment involved a desk study of a range of planning and other sources. A profile of the residential communities adjacent to the proposed route alignment is presented under the following headings:

- Land Use / Settlement Patterns
- Population Growth
- Household Formation
- Age Profile
- Employment Profile
- Social Class
- Community Facilities
- Access to Public Transport

Public consultation and field inspections allowed for the corroboration of the information obtained.

Based on the desk studies and consultations, it was possible to determine the likely significant impacts on both the local and wider community by considering the introduction of the proposed Luas Line A1 against the “do-nothing scenario”. While inevitably there is an element of subjectivity in people’s perceptions of the Luas Line A1 project, it is considered that the impacts presented are representative of the majority of those residing within the study area.

4.2 RECEIVING ENVIRONMENT

4.2.1 Study Area

For the purposes of this assessment a study area was identified and is broadly defined as that area bounded to the north by the Naas Road, to the east by the Belgard Road and Cookstown Way, to the south by the N81 Blessington Road and to the south west and west by Mill Road and Garter Lane (see Figure 4.1).

4.2.2 Land Use Planning/ Settlement Patterns

Figure 4.1 illustrates the land use pattern (existing and planned) within the study area based on the zoning objectives maps of the South Dublin County Development Plan 2004-2010, which is the statutory Development Plan for the area.

The area comprises predominantly low rise, low density residential estates interspersed with large areas of public open space. The housing estates of Fettercairn, Springfield, Brookfield and Jobstown were built by Dublin Corporation and County Council in the 1970's and 80's and these are primarily located at the eastern end of the area. These developments were followed in the past 10-15 years by private residential developments in the Fortunestown area. These include developments at Ard Mór, The Belfry, Saggart Abbey and Carrigmore.

Citywest Business Park (including Magna Business Park and National Digital Park), has been developed since the early nineties by Davy Hickey Properties. The area now accommodates over 120 companies employing over 4,000 people focused on innovation and high technologies. Much of the lands zoned for employment and enterprise are undeveloped at present and there is potential for more development in this area.

A District shopping centre is currently under construction at the junction of Citywest Road and Fortunestown Lane and will open in summer 2007.

The remainder of the study area consists of undeveloped lands which are giving way to new residential communities and other suburban type development. The result is that the built up area of West Tallaght is spreading out towards the village of Saggart and the Citywest Hotel Complex which is located immediately to the west of the study area.

The Roadstone Quarry in Belgard lies within the northern part of the study area. It is one of the largest quarries in Ireland, producing in excess of 2 million tonnes of crushed stone each year. Apart from its entrance on Cookstown Road, the quarry is hidden behind the embankment to the north of the proposed Luas Line A1. It is therefore isolated from the residential communities within the study area.

In summary, therefore, the land use pattern for the area is broadly based on the following:

- environmental improvement and consolidation of existing residential communities of Springfield-Fettercairn and Brookfield-Jobstown.
- development of the employment potential of Citywest Business Campus and Magna Business Park.
- development of new residential communities at sustainable densities in the western part of the study area focused on a new District Centre at Fortunestown.

In the near future, the development in the area will be supported by a variety of roads and infrastructural improvements, in particular, the implementation of the Outer Ring Road Phase 3 and the Embankment Road projects which are described in Chapter 2.0.