16.0 SUMMARY OF IMPACTS IDENTIFIED AND A DESCRIPTION OF THE INTER-RELATIONSHIP BEWTEEN THOSE IMPACTS

16.1 IDENTIFICATION OF LIKELY SIGNIFICANT IMPACTS

Section 39 of the Transport (Railway Infrastructure) Act, 2001 details the information to be contained in an Environmental Impact Statement. All relevant aspects of the environment have been considered in the appropriate sections of the EIS. In this chapter, the likely significant impacts on aspects of the environment have been considered under these headings and then, the inter-relationship between the matters referred to under each heading is considered, all of which have been complied with, and where appropriate are presented in the relevant sections of this EIS.

From the description of the project and assessment of impacts outlined in Chapters 3.0 -15.0 above, the significant impacts of the proposed development and their interaction may now be considered under the headings outlined in Section 39(2)(b), namely:

- Human Beings
- Flora
- Fauna
- Soil
- Water
- Air
- Climatic Factors
- Landscape
- Material Assets
- Architectural and Archaeological Heritage
- Cultural Heritage

The significant likely impacts outlined in the EIS are referenced below, with regard to these headings. Where appropriate, the relevant impact areas are considered in grouped form, as set out below.

Human Beings

The impact on human beings is considered generally in each of Chapters 4.0 –15.0. In the current context, the most significant likely impacts relating to human beings are considered in the following Chapters:

- Chapter 4.0 Socioeconomic and Community Impacts
- Chapter 5.0 Visual/ Landscape
- Chapter 11.0 Noise and Vibration

- Chapter 12.0 Material Assets
- Chapter 13.0 Transportation
- Chapter 14.0 Electromagnetic Interference

Overall, having regard to the findings of the above Chapters, the impact of the proposed development on Human Beings is considered to be significant and positive.

Flora and Fauna

Impacts on Flora and Fauna are addressed primarily in Chapter 6.0 – Flora and Fauna.

Subject to the implementation of the recommended mitigation measures, no significant adverse impacts are predicted in terms of Flora or Fauna.

Soil

Impacts on Soil are considered in Chapter 8.0. No significant adverse impacts are anticipated.

Water

Impacts on Water are considered in Chapter 9.0. No significant adverse impacts are anticipated.

Air Quality and Climatic Factors

Air Quality and Climatic Facotrs are considered in Chapter 10.0. In general, the project will have a positive impact on air quality by increasing the use of public transport and thereby contributing to a reduction of road traffic emissions in the region. Subject to implementation of appropriate mitigation measures, localised impacts on air quality arising from traffic queuing and the Park & Ride are not significant.

Visual/Landscape

The impact on the landscape is considered in Chapter 5.0. The overall impact on the landscape is considered to be significant and neutral / positive.

Impact on Material Assets

The impact on material assets is related to impacts described Chapter 4.0 – Socio-economic and Community Impacts, Chapter 7.0 – Archaeological, Architectural and Cultural Heritage, Chapter 12.0 – Material Assets, Chapter 13.0 Transportation and Chapter 15.0 Waste Management are also relevant. No significant adverse impacts are anticipated.

Archaeological Heritage

The impacts of the proposed Luas Line A1 on aspects of the receiving archaeological environment are considered in Chapter 7.0. No significant adverse impacts are anticipated, subject to adherence to the mitigation measures outlined.

Architectural Heritage

The impacts of the proposed Luas Line A1 on aspects of the receiving architectural environment are considered in Chapter 7.0. No significant adverse impacts are anticipated.

Cultural Heritage

The impacts of the proposed Luas Line A1 on aspects of the receiving cultural heritage environment are considered in Chapter 7.0. No significant adverse impacts are anticipated.

16.2 OTHER IMPACTS

Noise and Vibration

Impacts associated with noise and vibration are considered in Chapter 11. The overall impact of noise and vibration is considered to be slight to moderate.

Light

Impact associated with lighting is considered in Chapter 5.0. The overall impact is considered to be slight/moderate and neutral.

Heat

The nature of the project is such that heat generation is not significant and was eliminated from the scope of the assessment.

Radiation

Radiation is considered in Chapter 14.0 under the title 'Electromagnetic Interference'. No significant adverse impacts are anticipated in regard to Electromagnetic Interference.

Direct and Indirect Effects Resulting from the Use of Natural Resources

No likely significant effects including direct, indirect, secondary, cumulative, short, medium and long term, permanent and temporary, positive and negative of the proposed works on the environment are expected to arise from the use of natural resources.

Direct and Indirect Effects Resulting from Emission of Pollutants, Creation of Nuisances and Elimination of Waste

Details of all emissions arising from the proposed development are assessed in the relevant sections of this EIS. No likely significant effects on the environment are expected to arise from the emission of pollutants, the creation of nuisances or the elimination of waste.

16.3 ENVIRONMENTAL COMMITMENTS AND MITIGATION MEASURES

A table containing environmental commitments and mitigation measures to be adopted during the construction and operational phases of the proposed development is contained in Appendix 16A. These measures will be implemented through an environmental management system for the construction and operational phase.

16.4 RESIDUAL IMPACTS

Residual impacts can be defined as the final impacts that occur after proposed mitigation measures have taken effect.

Subject to adherence to mitigation measures recommended, no significant residual impacts are predicted in respect of visual landscape, flora and fauna, archaeology, architectural and cultural heritage, soils, water, air quality and climate, material assets, electromagnetic interference or waste management. In general residual impacts for these topics considered are imperceptible, neutral or positive.

In terms of likely impacts on human beings the proposed Luas Line A1 will introduce a new efficient mode of public transport to the existing and proposed communities, connecting Saggart with Tallaght and the City Centre. It is predicted that the proposed development will act as a catalyst for urban regeneration in the area and lead to an increase in development and population which is consistent with planning policy for the area. The proposed Luas Line A1 will also represent a significant positive impact for the area in terms of employment potential as the proposed line will greatly improve mobility to and fromi the area. This is considered to be a significant positive residual impact.

Residual impact with regard to traffic and transportation will also be generally positive as the implementation of the proposed Luas Line A1 will enhance public transport in the Citywest and Tallaght area and will reduce dependence on the private car in accordance with the principles of proper planning and sustainable development.

In terms of potential negative impacts, there will be some residual noise and vibration impacts, however, such impacts are considered to be slight or moderate in all cases during day time or night time periods.

It is concluded that the proposed development will have no significant negative residual impacts.

16.5 INTER–RELATIONSHIP BETWEEN THE IMPACTS

Section 39 (2) (b) (iv) of the Transport (Railway Infrastructure) Act 2001, requires that proposed developments are examined with regard to the inter-relationship between the likely significant impacts on the aspects of the environment listed in Section 39 (refer to section 16.1 above).

The matrix incorporated in Table 16.1 interrelates Chapters 4.0 - 15.0 of the EIS to the various impact headings referred to in Section 39(2)(b) of the Transport (Railway Infrastructure) Act, 2001. The matrix also indicates where these statutory information requirements have been incorporated in this EIS. It should be emphasised that this matrix does not represent a form of relative assessment of impacts, but merely identifies and amalgamates areas of principal interaction and significance.

Table 16.1: Interaction of Impacts

	Items In Section 39 of the Transport (Railway Infrastructure) Act, 2001															
Chapter Headings in EIS	Human Beings	Flora & Fauna	Soil	Water	Air	Climatic Factors	Landscape	Material Assets	Archaeology/ Architecture Cultural Heritage	Vibration	Noise	Light	Heat	Radiation	Use of Natural Resources	Emission of Pollutants, Creation of Nuisances Elimination of Waste
4.0 Socio-economic and Community Impacts	■						■	■			■					■
5.0 Visual / Landscape Impacts	■	■					■					■				
6.0 Flora and Fauna	■	■	■	■			■									
7.0 Archaeology, Architectural and Cultural Heritage	■						■	■	■							
8.0 Soil	■	■	■	■											■	
9.0 Water	■	■	■	■											■	■
10.0 Air Quality and Climate	■				■	■										■
11.0 Noise and Vibration	■									■	■					■
12.0 Material Assets	■		■	■				■								
13.0 Transportation	■				■			■			■					
14.0 Electromagnetic Interference	■				■			■					■	■		■
15.0 Waste Management	■															■

■ Areas of Principal Interaction

It is not considered that the inter relationship between these impacts on aspects of the environment will give rise to an alteration in the predicted impacts summarised above.

16.6 CUMULATIVE IMPACTS

Cumulative impacts are defined as: "The addition of many small impacts to create one larger, more significant, impact" (EPA 2002). Cumulatively, these impacts may be significant if they occur close together in terms of location and time.

In the case of the proposed Luas Line A1, the direct impacts will be concentrated in a relatively small area along and immediately adjacent to the route corridor. During the construction phase of the proposed Luas Line A1, cumulative impacts most particularly relate to human activity in terms of visual disamentity, construction noise and dust, traffic and pedestrian disruption. These impacts, while temporary and limited to a relatively small area, may cumulatively have a moderate negative impact on the local communities. The long term impacts of the operational phase are, however, significant and positive and will attract new businesses and residents to the area.

Cumulative impacts may also result from impacts on the environment occurring as a result of several developments occurring in the same location or at the same time. Other proposed developments identified within the vicinity of the proposed Luas Line A1 route include the Outer Ring Road Phase 3 and the approved Embankment Road extension. Therefore, cumulative impacts are possible as a result of the construction of the proposed Luas Line A1 at the same time as the Outer Ring Road Phase 3 and the approved Embankment Road extension schemes. This possibility has been factored into the assessment and where appropriate the worst-case scenario has been assumed. It can also be observed that the coincidence of these impacts also minimises the duration of these temporary impacts. Again, once operational, the proposed Luas Line A1 and the various road schemes proposed in the area will improve access to the area. The long term cumulative impact is therefore considered to be significant and positive.

Where construction of the proposed Luas Line A1 coincides with construction of other development projects along the route, there may be an accumulation of effects during the construction period. Such impacts will, however, be taken into account by the planning authority in exercising their development control function for future developments in the local area.

16.7 DO NOTHING SCENARIO

The "do nothing" scenario describes the situation or environment that would exist if no development were carried out.

If the proposed Luas Line A1 were not developed, the trend of development in the vicinity of the proposed route would continue along a similar line to that currently in existence.

Other planned infrastructural projects including the Embankment Road extension and Outer Ring Road Phase 3 would proceed, with associated impacts along the Embankment Road extension reservation.

Land in the vicinity of the proposed Line A1 route would continue to be developed for residential and commercial uses in line with the South Dublin County Development Plan 2004-2010.

In the absence of the proposed Luas Line A1, there would be a continued overdependence on the private motorcar for access to the Citywest Campus and surrounding areas. This would result in a negative environmental impact.