

APPENDIX 15A: CONSTRUCTION AND DEMOLITION WASTE MANAGEMENT PLAN

1.0 INTRODUCTION

This Construction and Demolition Waste Management Plan (C&D WMP) has been prepared in support of an application for a Railway Order application for the proposed Luas Line A1. This Plan will address the issues concerning waste storage and collection during the Construction and Demolition (C&D) phase of the project.

The purpose of this C&D WMP is to ensure that waste arising during the C&D phase will be managed and disposed of in a way that ensures the provisions of the Waste Management Act 1996¹ and associated Regulations and the Waste Management Plan 2005-2010 for the Dublin Region² are complied with. It will also ensure that optimum levels of reduction, re-use and recycling are achieved.

This plan is a live document and must be developed in greater detail during detailed design and prior to the commencement of construction.

2.0 REQUIREMENTS FOR CONSTRUCTION AND DEMOLITION WASTE MANAGEMENT

The Strategic Review Committee to the Minister for the Environment and Local Government produced a report in 1997, entitled "Report on the Strategic Review of the Construction Industry"³. This report produced 86 recommendations for the construction industry, with a number of them concerned with how to manage C&D waste.

The Government issued a Policy Statement in September 1998, known as 'Changing Our Ways', which identified objectives for the prevention, minimisation, reuse, recycling, recovery and disposal of waste in Ireland⁴. A strong emphasis was placed on reducing our reliance on landfill, and finding alternative methods of managing waste. The target for C&D waste in this Strategy was to recycle at least 50% of C&D waste within a five year period, with a progressive increase to at least 85% over fifteen years⁴.

In response to the "Changing Our Ways" report, a task force (Task Force B4) representing the waste group of the already established Forum for the Construction Industry, released a report titled 'Recycling of Construction and Demolition Waste'⁵ concerning the development and implementation of a voluntary construction industry programme to meet the government's objectives for the recovery of construction and demolition waste. This report included a list of 66 recommendations to ensure that the targets in the government report were met.

The National Construction and Demolition Waste Council (NCDWC) was launched in June 2002, as one of the recommendations of the Forum for the Construction Industry, in the Task Force B4 final report. Their first Annual Report was published in 2003⁶, which detailed achievements and aims of the Council.

The establishment of this Council has been the most significant development to date regarding C&D waste management in Ireland, as defined targets are being achieved by the Council, with many work programmes currently underway. The main achievements of the Council so far are that research into the feasibility and economics of establishing C&D waste processing plants countrywide has been completed and a survey of existing processing facilities has been completed (but is yet to be published)⁶.

The Dublin Region produced a Waste Management Plan in 1999, which encompasses the Local Authorities of Dublin City, South County Dublin, Dun Laoghaire Rathdown County Council and Fingal County Council. The Plan has been revised for the period 2005 - 2010.

The recycling rates for C&D waste adopted by the Dublin Region are 82% by the year 2013. The 2001 EPA Waste Database⁷ showed 65.4% recycling of C&D waste in Ireland, including a large portion of recovery from landfill. The 2004 EPA report showed an increase to 85% recycling.

In July, 2006, Guidelines for the Preparation of Waste Management Plans for Construction and Demolition Projects were published by the NCDWC8, on behalf of the Department of the Environment. These Guidelines outline the issues that need to be addressed at the pre-planning stage of a development all the way through to its completion. The Guidelines request that a C&D Waste Management Plan should address the following aspects:

- analysis of the waste arisings/material surpluses
- specific waste management objectives for the project
- methods proposed for prevention, reuse and recycling of wastes
- material handling procedures
- proposals for education of workforce and plan dissemination programme.

3.0 DETAILS OF THE WASTES TO BE PRODUCED (INCLUDING ESTIMATED C&D SURPLUSES/DEFICITS)

During the C&D phase, there will be waste generated, such as off-cuts of timber, oversupply of materials, along with packaging materials such as cardboard, plastic and polystyrene.

3.1 Main C&D Waste Categories

The main waste streams which are likely to be produced during the C&D phase and European Waste Code (EWC) Classification for each waste stream is presented in Table 3.1.

Table 3.1: Waste types and EWC Classification

Waste Material	Four-Digit EWC Code
Concrete, Bricks, Tiles and Ceramics*	17 01
Wood, Glass and Plastic*	17 02
Bituminous Mixtures, Coal Tar and Tarred Products*	17 03
Metals (including their alloys)*	17 04
Soil, Stones and Dredging Spoil*	17 05
Insulation Materials and Asbestos Containing Construction Materials*	17 06
Gypsum-Based Construction Material (eg: plasterboard)*	17 08
Other Construction and Demolition Waste*	17 09
Electrical and Electronic Equipment*	16 02
Batteries and Accumulators*	16 06
Liquid Fuels*	13 07
Waste Packaging*	15 01

* Individual waste types may contain hazardous materials

3.2 ESTIMATED WASTE ARISING & PROPOSALS FOR REDUCE, REUSE & RECYCLE

3.2.1 Demolition Phase

Three unoccupied, semi-ruinous properties flank the north side of Fortunestown Road and will be demolished. The area of demolition is circa. 288 m², this excludes roads and impermeable areas with no buildings. Table 3.2 shows the predicted demolition figures for the area.

Table 3.2 Predicted waste from the Demolition Phase

Waste Types	Demolition Area (m ²)	% Waste	Predicted Waste (tonnes)
Glass	288	1	1.7
Concrete, Bricks, Tiles, Ceramics	288	66	114.0
Plasterboard	288	4	6.9
Asphalt, Tar and Tar products	288	6	10.4
Metals	288	2	3.5
Slate	288	8	13.8
Timber	288	13	22.5
Total	288	100	172.8

Table 3.3 shows the reuse/recycling/recovery targets for the demolition waste.

Table 3.3 Predicted reuse/recycling/recovery from the demolition phase

Waste Types	Reuse/Recover		Recycle		Disposal	
	%	tonnes	%	tonnes	%	tonnes
Glass	0.0	0.0	85.0	1.5	15.0	0.3
Concrete, Bricks, Tiles, Ceramics	85.0	96.9	5.0	5.7	10.0	11.4
Plasterboard	0.0	0.0	0.0	0.0	100.0	6.9
Asphalt, Tar and Tar products	0.0	0.0	25.0	2.6	75.0	7.8
Metals	5.0	0.2	80.0	2.8	15.0	0.5
Slate	0.0	0.0	85.0	11.8	15.0	2.1
Timber	10.0	2.2	40.0	9.0	50.0	11.2
Total		99.4		33.3		40.2

3.2.2 Construction Phase

The EPA has produced figures for the C&D wastes recorded in the National Waste Database 8. This included a percentage breakdown of each waste type in a typical C&D waste stream.

Figure 1: Breakdown of Waste Materials generated at a building construction site

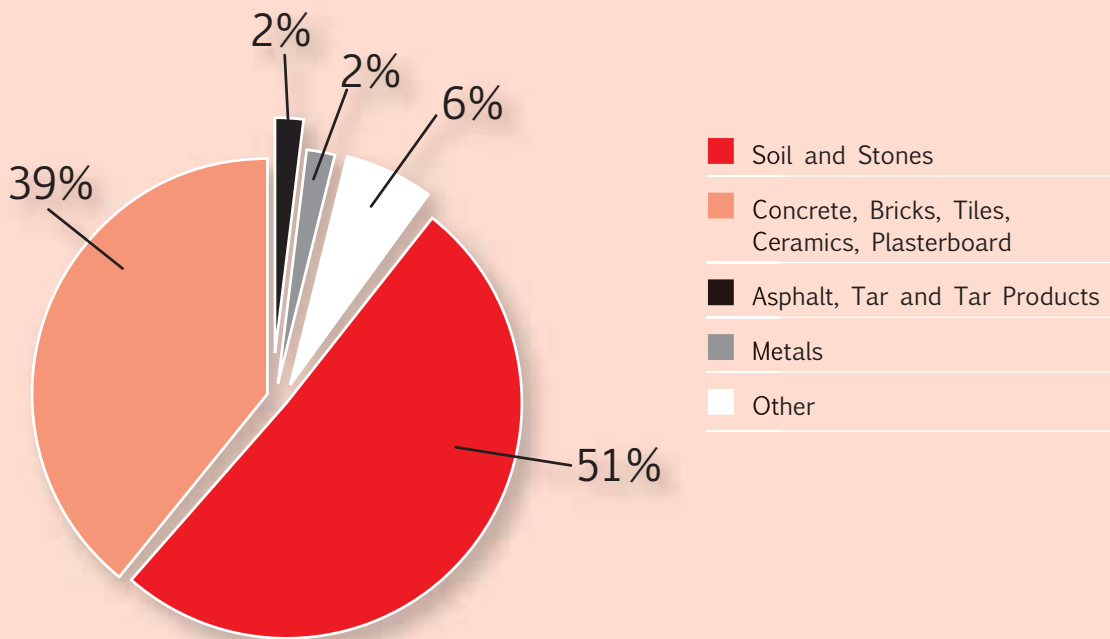


Figure 1 applies to commercial building construction and is an indication of waste production from the construction of a Luas stop. The construction of the line will generate considerably more soils and stones than other types of material. The excavated material from the site will be reused preferably on site, i.e. used for land remediation/infill on other sites in the area.

The track length is 4.2km with the maximum track width being 6.6m. Final estimates of soil and subsoil volumes to be excavated are 32,538m³, according to Scott Wilson, Project Designers. 910m³ of soil and subsoil is expected to be reused during the construction therefore 31,628m³ will be taken offsite for reuse, recovery and disposal.

Table 3.4 shows the targets for recycling, reuse and recovery during the construction phase of the track line (excluding the stops).

Table 3.4: Reuse & Recycle Targets for Construction Phase of the Track Line

Waste Types	% Waste	% Reuse	% Recycle	%Disposal
Soil & Stones	76	95	0	5
Concrete, Bricks, Tiles, Ceramics, Plasterboard	16	0	75	25
Asphalt, tar and tar products	1.5	5	80	15
Metals	1.5	10	80	10
Other	5	10	40	50

Each of the proposed stops will comprise raised platforms approximately 0.28m high and 40m long, with a 5m ramp at either end where required. The platforms will be a minimum of 3m wide and will be situated on either side of the tracks. The platforms will be constructed from concrete. The majority of waste from the construction of the stops will be concrete, soil and stones. Table 3.5 shows the targets for recycling, reuse and recovery during the construction phase of the Luas Stops.

Table 3.5: Reuse & Recycle Targets for Construction Phase of the Luas Stops

Waste Types	% Waste	% Reuse	% Recycle	%Disposal
Soil & Stones	66	95	0	5
Concrete, Bricks, Tiles, Ceramics, Plasterboard	26	0	75	25
Asphalt, tar and tar products	1.5	5	80	15
Metals	1.5	10	80	10
Other	5	10	40	50

3.3 Proposed Uses of Wastes and Surpluses/Deficits from the Site

Where feasible, waste will be segregated on site. Two bays are proposed to be located along the proposed route for the duration of the construction and demolition phase of the development. These bays will be located within the two construction compounds, the locations of which are shown in Figure 3.3 of Volume 2 – Main Report. Each bay will include segregated areas for recyclable waste streams, such as soil/stones, cardboard, timber, concrete/blocks/tiles etc. A sketch of a typical waste storage bay is shown as Figure 3.1 at the end of the appendix.

Only licensed waste contractors will be used to dispose of waste material from site. Copies of licenses will be retained on site with other waste records.

The following waste streams have been identified:

Cardboard

Where feasible cardboard will be segregated within the construction compounds. The cardboard will be flattened and placed in a covered skip or tied and covered, to prevent it getting wet. A licensed waste contractor will collect it as required.

Blocks and Concrete

The majority of this waste material will be clean, inert material and it is proposed to reuse it for construction purposes where possible. If is material suitable for reuse, a mobile crusher may be employed as required to crush blocks and concrete. By doing this, a substantial amount of these materials can be made available for reuse.

Soil/Subsoil

Excavated soil will be disposed of off-site. Soil samples were collected from 45 trial pits at numerous locations along the proposed track route, no contamination was found in the samples.

All soil (Non-hazardous or hazardous) will be classified according to Council Decision 2003/33/EC, which establishes the criteria for the acceptance of waste at landfills.

Soil will be removed and disposed of by contractors licensed under the Waste Management Act of 1996, the Waste Management (Permit) Regulations of 1998 and the Waste Management (Collection Permit) Regulations of 2001. This material will be used for fill material at adjacent sites if possible and on other sites for engineering purposes.

Plastic

As plastic is considered a highly recyclable material, much of the plastic generated during construction will be diverted from landfill and recycled. Where feasible clean plastic will be segregated at source and kept as clean as possible and stored in a dedicated covered skip.

Timber

There will be timber waste generated from the construction work as off-cuts or damaged pieces of timber. Timber that is uncontaminated, i.e. free from paints, preservatives, glues etc, will all be recycled. It will be stored on site in a designated skip, and collected by a recycling contractor. Such companies shred the timber and use it for manufacture of wood products or for landscaping (wood chips etc). Timber can also be recycled for shuttering or hoarding or sent for reprocessing as medium density fibreboard.

Scrap Metal

Steel is a highly recyclable material and there are numerous companies that will accept waste steel and other scrap metals.

Asbestos

Asbestos Cement watermain pipework found along the proposed route will need to be removed. A specialised contractor will be employed to carry out an environmental clean-up to remove all traces of the contaminated material. This will be disposed of at a licensed asbestos disposal facility. Any asbestos found in existing structures during the construction and demolition phase will also be managed by a specialist contractor.

Hazardous Wastes

On-site storage of any hazardous wastes produced will be minimised, with off-site removal organised on a regular basis. Storage of all hazardous wastes on site will be undertaken so as to minimise exposure to on-site personnel (and the public) and to also minimise potential for environmental impact.

3.4 Tracking and Documentation Procedures for Off-Site Waste

A procedure will be developed and implemented for managing the movement of all waste material. All waste material will be managed in compliance with the Waste Management Act of 1996 & 2001 and also the Waste Management (Collection Permit) Regulations of 1998 & 2001, i.e. any contractor removing waste from the site will have a waste collection permit issued by Dublin City Council (on behalf of all Dublin local authorities). A copy of all waste collection permits will be maintained on site with all waste documentation.

4.0 C&D WASTE MANAGEMENT PROCEDURES

4.1 Sorting/Segregation Arrangements for Individual Materials

Opportunities for reuse of material will be explored in advance of sending material off site for disposal.

C&D waste materials will be stored within the bays located in the two construction compounds. The site foreman must inspect the wastestorage arrangements on a weekly basis and complete an audit on a monthly basis. The audit will involve a review of all waste documentation on site as well as an inspection of the waste storage arrangements.

4.2 Roles and Responsibilities

Project Manager:

The Project Manager is responsible for the overall implementation of this plan and associated procedure and must provide a progress report to the client on a monthly basis. The project manager will ensure that there are adequate resources to support the development and implementation of this plan.

Waste Manager:

A member of the construction team will be appointed as a waste manager. This person will be responsible for the implementation of this plan and will ensure commitment, operational efficiency and accountability.

The waste manager will be given responsibility and authority to select a waste team if required, i.e. members of the site crew that will aid him/her in the organisation, operation and recording of the waste management system on the site.

The waste manager will be trained in how to set up and maintain a record keeping system, how to perform an audit and how to establish targets for the waste management on site.

Site Staff:

All staff are responsible for the effective implementation of this plan and associated procedures. All staff will be trained on waste prevention and on site procedures. They will receive regular toolbox talks in relation to best waste management practices.

Procurement/Commercial team

The procurement/commercial team are responsible for minimising environmental impacts and managing waste through the procurement chain. This is achieved through preventing the purchase of excess materials, finding a reuse for materials that are not used and considering the potential environmental effects of materials and products prior to purchase.

4.3 Training

The waste manager will be trained in the best methods for segregation and storage of recyclable materials, have information on the materials that can be reused on site and know how to implement the construction and demolition waste management plan.

The training of the site crew is the responsibility of the waste manager. A waste training programme will be organised. A basic awareness course will be held for all site crew to outline the C&D waste management plan and to detail the segregation of waste materials at source. This may be incorporated into the induction course,

This basic course will describe the materials to be segregated, the storage methods and the location of the waste storage areas. A subsection on hazardous wastes will be incorporated and the particular dangers of each hazardous waste will be explained.

5.0 RECORD KEEPING

Records will be kept for each waste material, which leaves the site, either for reuse on another site, recycling or disposal. A system will be put in place to record the construction waste arisings on site.

The waste manager or a member of his team will record the following on a monthly basis;

- Waste taken for Reuse off-site (i.e. for capping of landfill cells or at another site)
- Waste taken for Recycling
- Waste taken for Disposal
- Reclaimed waste materials brought on-site for reuse

For each movement of waste on- or off-site, the waste manager will obtain a signed docket from the contractor, detailing the weight and type of the material and the source and destination of the material.

This will be carried out for each material type. This system will also be linked with the delivery records. In this way, the percentage of construction waste generated for each material can be determined.

6.0 OUTLINE WASTE AUDIT PROCEDURE

The appointed waste manager on site will be responsible for conducting a waste audit on a monthly basis at the site.

A review of all the records for the waste generated and transported on- or off-site will be undertaken. If waste movements are not accounted for, the reasons for this should be established in order to see if and why the record keeping system has not been maintained.

A summary report will be prepared and compared with the established recovery/reuse/recycling targets for the site.

Each material type will be examined, in order to see where the largest percentage waste generation is occurring. The waste management methods for each material type will be reviewed in order to highlight how the targets can be achieved.

Waste management costs will also be reviewed. Ongoing consultation with waste contractors and South Dublin County Council will be undertaken in order to ensure that the best practicable option is being followed for waste management on site.

REFERENCES

1. *Waste Management Act, 1996. S.I. No. 10 of 1996*
2. *Waste Management Plan for the Dublin Region, 2005 – 2010, Dublin City Council, South Dublin County Council, Dun Laoghaire Rathdown County Council and Fingal County Council.*
3. *Report on the Strategic Review of the Construction Industry, 1997.*
4. *Changing Our Ways; A Policy Statement on Waste Management. Mr. Noel Dempsey, Minister for the Environment and Local Government, Sept. 1998*
5. *Recycling of Construction and Demolition Waste, 5th March, 2000. Forum for the Construction Industry*
6. *1st Annual Report of the National Construction and Demolition Waste Council (NCDWC), 2003*
7. *National Waste Database, 2005. EPA and DoELG, 2006*
8. *Best Practice Guidelines – Preparation of Waste Management Plans for C&D Waste, NCDWC on behalf of the Dept. Environment, July, 2006.*

APPENDIX 15B: OPERATIONAL WASTE MANAGEMENT STRATEGY

1.0 INTRODUCTION

The purpose of this Waste Management Strategy (WMS) is to ensure that waste arising from the proposed Luas Line A1 will be managed and disposed of in a way that ensures compliance with the provisions of the Waste Management Act 1996 and associated Regulations, the Litter Act of 1997 and associated Regulations, the Waste Management Plan 2005 – 2010 for the Dublin Region², and achieve optimum levels of waste reduction, re-use and recycling.

It is intended that the WMS will be used during the operation of the Luas to ensure efficient and legally compliant waste management. This Strategy will ensure that the Luas operates in an economical and environmentally sustainable manner.

2.0 RECENT TRENDS IN WASTE MANAGEMENT

The first Waste Management Plan for the Dublin Region was introduced in 1999². The Plan was updated for the period 2005-2010.

The new Plan recommends an integrated approach to waste management involving new recycling initiatives, biological and thermal treatment of wastes and finally (as a last option) landfill of residual wastes.

The Plan has set a number of targets for the region. The main targets can be summarised as follows;

- A minimum 65% reduction in biodegradable waste consigned to Landfill
- Recycling of 43% of municipal waste
- Recycling of 41% of commerce/industry waste
- Thermal treatment of 39% of waste
- Landfill 18% of waste
- A recycling rate of 25 % of packaging waste by the end of 2005 and 55% recycling rate by 2011

The Plan notes that the Waste Management Regulations, which require producers to take responsibility for their own waste, will be followed. The Plan also emphasises the fact that the whole plan hinges around the enforcement of waste regulations, with a stipulation that local authorities will set up a set of waste regulation bye-laws to enforce the objectives of the Plan. These regulations specify that source segregation of waste is a priority.

Specific responsibilities placed upon businesses by the Plan are:

- Segregate waste for reuse and recycling
- Present waste in accordance with requirements of waste collectors
- Emphasis on waste prevention to pay cost of waste management in line with polluter pays principle

Landfill charges in the Dublin area are currently in the region of €165/tonne at Balleally landfill. This has increased since the Waste Management (Landfill) Regulations Landfill Levy of €15/tonne was introduced in 2002 (S.I. 86 of 2002) and is set to continue to rise, as landfills are under increasing pressure to take waste.

Most commercial waste generated in the Dublin region is collected by private waste contractors. Industrial and C&D waste collection is also largely provided by private waste contractors.

3.0 WASTE MANAGEMENT LEGISLATION & OBLIGATIONS

One of the guiding principles of European Waste Legislation, which has in turn been incorporated into the Waste Management Act and subsequent Irish legislation, is the principle of “Duty of Care”.

This implies that the waste producer is responsible for waste from the time the waste is generated until it is disposed of legally and this includes its method of disposal.

As it is not practical in most cases for a commercial or residential waste producer to physically transfer all waste from the area where it is produced to the final disposal area, waste contractors are employed to physically transport waste to the final waste disposal site.

The Act also incorporates the “polluter pays” principal, whereby the waste producer is liable to be prosecuted for pollution incidents, which may arise from the incorrect transport of waste produced by the waste producer.

It is therefore imperative that the waste producer ensures that each waste contractor is legally compliant with respect to waste transport and disposal.

In general, each waste contractor must comply with the provisions of the Waste Management Acts of 1996 and 2003 and associated Regulations³, which require that a contractor handle, transport and dispose of waste in a manner that ensures that no adverse environmental impacts occur as a result of any of these activities.

A Permit to transport waste must be held by the relevant contractor and this permit shall be verified with the Permitting Authority (usually the Local Authority although the EPA may also have had a role in issuing the permit).

A Contractor shall not be permitted to receive any waste at their site, unless in possession of a waste permit granted by a local authority under the Waste Management (Permit) Regulations, 1998⁴ or a waste licence granted by the EPA. The permit will specify the types of waste a contractor is licensed to receive, store, sort, and recycle on their site.

4.0 MODELLING OF WASTE TYPES AND QUANTITIES GENERATED

The waste arisings associated with the operation of the Luas includes passenger waste, generated both on board the trams and at the stops, and operational waste.

Information was received from the RPA relating to current waste arisings at different stops on the current Luas line. See Table 4.1.

4.1 PASSENGER WASTE

4.1.1 Waste arisings from similar projects

From a review of waste audits carried out on similar rail and light rail projects it was found that newspapers and magazines constitute a significant proportion of passenger waste. In a study of Virgin West Coast trains in the UK⁵, some 45% of the total on-board waste was newspaper and magazines. On Eurostar trains between Paris, Brussels and London, this figure is 59%. The percentage of newspaper falls in audits of passenger waste from waiting and stop areas alone. On average, newspaper arising from these sources constitutes approximately 20% of the total waste. As far as newspaper waste from all sources is concerned, the levels of contamination were found to be low. In terms of quantity, newspaper is followed by plastics and cardboard. The majority of the plastic waste arises from food and drink packaging; sandwich boxes and drinks bottles predominate. The card is predominantly of the corrugated variety and is largely the outer packaging from food and drinks supplies.

In terms of an opportunity for improved public relations, it would appear that passengers rate recycling initiatives very highly. As part of the project, Network recycling undertook passenger surveys for both Eurostar and Virgin Trains. The overwhelming majority of passengers responded very favourably to the idea of recycling passenger waste, with many stating that they would actively support the process. This indicates that, despite the challenges involved, the introduction of a recycling scheme could have a positive effect on an organisations profile. In conclusion, this project has enabled research to be undertaken into key rail waste streams and has highlighted both the challenges and opportunities associated with the management of them. The issues that need to be addressed in order to tackle this waste stream more effectively have been briefly outlined above.

4.1.2 Luas

In terms of the wastes generated by passengers on the Luas, a similar trend is expected to occur in that the majority of the waste stream will be made up of newspapers and magazines.

All stops on the proposed Luas Line A1 will have ticket machines. Tickets can become a litter issue if discarded. In order to provide a more flexible travel option; the Luas Smart Card will be available for use on the proposed Luas Line A1. This is a durable card the size of a credit card which allows Luas customers to pay-as-they-go when they travel on Luas. This card will avoid the need to buy numerous cards and thus prevent waste generation.

Commuter paper recycling bins can be located at each stop. The units can be made of 100% recycled plastic. Other commuter recycling bins can also accept paper (newspaper, magazines, junk mail, telephone directories), cans (food, drinks and aerosol cans, glass bottles and jars (green, clear, brown) and plastic bottles.

4.2 OPERATIONAL WASTE

Information relating to the operational waste at several Luas stops has been incorporated to model the predicted waste from the operational phase of the proposed Luas Line A1. Table 4.1 presents the latest figures for operational waste generation. General waste is placed in 1100l bins, mixed recyclables are also placed in 1100l bins.

Based on current information the predicted recycling rate at the proposed Luas Line A1 is 43%. With the introduction of an improved waste management system the recycling rate will also be expected to improve.

Table 4.1: Current and Predicted Waste Generation Figures, Luas Line

Stop	Time Period	General		Recyclables		Total	
		Kg	%	Kg	%	Kg	%
Luas Red Cow	Apr 04-Jan 06	25515	51	23856	49	49371	100
Luas Sandyford	Apr 04-Jan 06	155	20	624	80	779	100
Green Line (13 stops)	Jan 05 – Dec 05	13365	58	9936	42	23301	100
Green Line (1 stop)	Jan 05 – Dec 05	1028	57	764	43	1792	100
Luas Line A1 (5 stops)	Predicted	5140	57	3822	43	8962	100

4.3 GENERAL INFORMATION FOR PASSENGERS AND OPERATIVES

Passengers should be made aware of the following key points with respect to waste management.

- Under 5 (1) (d) of S.I. No. 100 of 2004 Light Railway (Regulation of Travel and Use) Bye-Laws 2004 it states the following: A person shall not on a light rail vehicle or a light railway - discard any litter or rubbish other than in a container provided for that purpose.

Each operative will be informed of the following key points with respect to waste management.

- In order to achieve maximum waste recycling rates, it will be necessary to segregate waste and to store it in a manner, which ensures it is presented in optimum condition for recycling.
- Clean plastic and cardboard waste will be segregated for recycling
- Mixed non recyclable waste ONLY will be placed in the municipal waste bins

The waste bye laws for South Dublin County Council⁶ should be made known to all operatives and be made available for consultation.

5.0 CONCLUSIONS

By implementing this Waste Management Strategy for the operational phase of the development, a high level of recycling, reuse and recovery is possible at the site. By segregating the waste streams at source, a high level of recycling will be possible and maximum diversion from landfill will be accomplished, thus achieving the targets set out in the Waste Management Plan for the Dublin Region.

REFERENCES

1. *Waste Management Act, 1996. S.I. No 10 of 1996 (Amended 2001).*
2. *Dublin Waste Management Plan 2005 – 2010.*
3. *Waste Management Acts 1996 & 2003 and Associated Regulations*
4. *Waste Management (Permit) Regulations, 1998*
5. *Terminal Recycling – Rail, Network Recycling, November 2005.*
6. *South Dublin County Council (Storage, Presentation and Collection of Waste) Bye Laws, 2004*

Figure 3.1: Example Construction and Demolition Waste Storage Area

