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Connolly Station, Dublin 1, D01 V6V6

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12th August 2021

[REDACTED]

Email: [REDACTED]

Re: FOI request IE_FOI_488

Dear [REDACTED],

I refer to your request dated 18th June 2021 made under the Freedom of Information Act 2014, which was received on by my office on that date, for records held by Iarnród Éireann.

Request:

- Copy of the DART+ Fleet Strategy Paper.

The decision maker handling your request is Mr. Mark Conroy.

Response:

I, [REDACTED], Decision Maker have now made a final decision to part grant your request on 12th August 2021.

Please find response document and schedule of records attached.

Rights of appeal

In the event that you are not happy with this decision you can make an appeal in relation to this matter, you can do so by writing to the FOI Unit, Corporate Communications, Iarnród Éireann Irish Rail, Connolly Station, Amiens St, Dublin 1 or by e-mail to foi@irishrail.ie. You should make your appeal within 4 weeks (20 working days) from the date of this notification, where a day is defined as a working day excluding, the weekend and public holidays, however, the making of a late appeal may be permitted in appropriate circumstances.

The appeal will involve a complete reconsideration of the matter by a more senior member of the staff of this body.

Should you have any questions or concerns regarding the above, please contact the FOI Officer on [REDACTED] or by email at foi@irishrail.ie

Yours sincerely,

[REDACTED]

[REDACTED], FOI Decision Maker, Infrastructure Mgmt, Iarnród Éireann

Freedom of Information Request:
 Schedule of Records for IE_FOI_488 : Summary for Decision Making

Record No.	Date of Record	Brief Description	No. of Pages	Decision: Grant/Part Grant/Refuse	Section of Act if applicable	Record Edited/Identify Deletions
	01-Feb-21	Dart + Fleet Strategy Paper_IE Board_Redacted	7	Part Grant	see below	
	page 1	Names			Section 37 - Personal Information	Personal Information of Others
	page 2	Strategy			Section 29 - Deliberations of Public Bodies	Information relating to the deliberative process so that an ongoing activity of formulating, considering, weighing up, advising and deciding on issues is not interfered with.
	page 3	Costings			Section 36(1)(c) - Commercially Sensitive Information	Commercially sensitive information which could prejudice the conduct of negotiations
	page 6/7	Strategy			Section 29 - Deliberations of Public Bodies	Information relating to the deliberative process so that an ongoing activity of formulating, considering, weighing up, advising and deciding on issues is not interfered with.

Signed: [Redacted]

Freedom of Information / Data Protection Office

<p>Author: ██████████ Assistant Director DART+</p>	<p>STRATEGY PAPER</p> <p>DART+ Fleet Strategy</p>	<p>Reviewed by: EG 27/01/2021</p>
<p>Submitted by: ██████████ Director of Capital Investments</p>		<p>Approved by:</p>

1. DECISION SOUGHT

The approval of the board of Iarnród Éireann is sought for the fleet procurement strategy as set out in section 4 below, but summarised as placing an initial order for:

- **24 EMUs (Electrified Multiple Units) to provide additional capacity in the existing electrified area;**
- **52 BEMUs (Battery Electric Multiple Units) to operate on the Northern Line as far as Drogheda.**

Future order profiles will need to be considered having regard to the National Development Plan review and the progression of the electrification programme. Accordingly, it is proposed to review and update the fleet ordering strategy incorporating updated timelines, numbers and fleet types for the second and subsequent orders in early 2022.

2. BACKGROUND

2.1 *Infrastructure First*

The current DART+ Programme is based on the principle of fleet delivery following the provision of the infrastructure, as set out in the 'Baseline Business Case' (BBC) approved by the IÉ Board in February 2020.

2.2 *Fleet Type*

The BBC is based on the procurement of 41 InterCity Railcars (ICRs) and 260 EMUs.

There is no direct provision within the BBC for BEMUs, however, in section 5.B of the BBC, 'Risk of Scope Change', the provision of BEMUs is listed as a potential scope change during the design development stage.

3. CURRENT POSITION

3.1 *DART+ Programme*

The DART+ Programme consists of 3 infrastructural projects; DART+ West, South West and Coastal. Additionally, there are 2 fleet procurement projects; the purchase of 41 ICR cars and 260 EMUs.

It should be noted that the procurement process for the new fleet provides for the call-off for 600 EMUs / BEMUs and thus provides for requirements beyond DART+.

3.2 *DART+ West*

DART+ West is currently progressing through the preliminary design stage with a view to submitting its Railway Order (RO) application in Q2 2021. The overall programme currently plans to deliver the electrified Maynooth line which includes the new EMU depot by late 2024, followed by a 6-month commissioning period.

The delivery programme for the Maynooth Line is an ambitious programme containing significant time risk, including, for example, the RO being granted within a 6-month period from lodgement.

The planned timeline to RO submission was initially 12-months from contract award. This is now at 16 – 18 months with an ambition of making up this delay within the overall design, RO, tender and construction phases.

The timeline for the construction delivery was developed from concept stage information and its robustness/validity has yet to be reviewed by the DART+ West Line Multi-Disciplinary Consultant (MDC). This will be completed in Q1 2021 based on preliminary design phase information.

3.3 DART+ South West

DART+ South West is currently progressing through the preliminary design stage with a view to submitting its RO application in Q4 2021. The overall programme currently plans to deliver the electrified line by mid-2028, followed by a 6-month testing and commissioning period.

3.4 DART+ Coastal

DART+ Coastal plans to submit RO applications in 2022. The overall programme currently plans to deliver the electrified line by mid-2028, followed by a 6-month testing and commissioning period.

3.5 DART+ Fleet

The BBC identified the following fleet ordering timeline to align with infrastructure delivery:

Order No	Quantum	Order Date	Delivery Date	Entry into service post commissioning	Maynooth Line Infrastructure Commissioned	Kildare Line Infrastructure Commissioned	Coastal Line Infrastructure Commissioned
1	24 EMUs	Q4 '20	Q4 '24	Mid '25	Mid '25		
2	52 EMUs	Q2 '21	Q2 '25	Late '25			
3	56 EMUs	Q2 '22	Q2 '26	Late '26			
4	128 EMUs	Q2 '24	Q2 '28	Late '28		Mid '28*	Mid '28**

*Note: opportunity exists to improve delivery date by c.1year based on a revised funding profile

** Note: opportunity exists to improve delivery date by c.0.5-1year based on a revised funding profile

The table above assumes the initial 3 orders of 132 EMUs or 33 Half Length Units (HLUs) would be procured for operation on either the current electrified network and the newly electrified Maynooth Line, with the final order of 32 HLUs arriving post the completion of the Kildare and Coastal lines.

The fleet build and delivery times vary from supplier to supplier. When the contract award recommendation is determined in February 2021 then there will be a better understanding of the timescales involved.

For the purposes of this paper a timeline from order to commissioning for the first is 4 years with this reducing to 3.5 years for subsequent orders.



3.6 BEMU Infrastructure Study

A concept design, study into the infrastructure required to support the operation of BEMUs on the northern line to Drogheda has been undertaken by Jacobs. The key outputs of this study are:

- Estimated cost to provide the infrastructure at Drogheda: [Redacted]
- Estimated timeline to provide the infrastructure: 3years

Additionally, works at the Connolly depot to support the DMUs cascaded by the introduction of BEMUs or EMUs from Drogheda is required. The cost of this work is estimated at [REDACTED]. Additionally, it is assumed that the Maynooth Depot will be available for heavy maintenance requirements.

4. FLEET PROCUREMENT STRATEGY

4.1 First Order of EMUs

Upon execution of the New Fleet Framework Agreement, approval for which will be progressed under a separate paper, the first order will provide for the purchase of 6 HLUs which will be used on the current electrified area to bring all services up to an 8-car service.

Due to the delays experienced in the project to date and the time risks associated with statutory approvals, construction stage and funding risks, the first fleet order should not be dependent on the delivery of the overhead power on any of the lines.

Therefore, this order of 6 HLUs represents the maximum number of EMUs that can be ordered unlinked to new overhead power infrastructure delivery.

The design / manufacture / delivery and commissioning period for the 1st order is assumed to be c.4 years, thus the first order, if placed in Q2 2021 would be in operational service in Q2 2025.

4.2 BEMUs within the First Order

A key decision with respect to the first order is the inclusion of BEMUs. Influencing factors include the following:

- Timeline for the design, manufacturer, delivery and commissioning of BEMUs – assumed to be 4 years;
- Timeline for the delivery of the BEMU support infrastructure – assumed to be 3 years.

Based on the above there is limited risk in breaching the ‘fleet follows infrastructure’ principle.

In terms of cost impact, the cost associated with the BEMUs is [REDACTED] based on 13 HLUs (52 units based on a 4 car HLU):

- [REDACTED] for BEMUs (source is derived from an analysis of the tender returns which noted a cost for a BEMU at [REDACTED] per unit, c. [REDACTED] additional cost versus an EMU);
- [REDACTED] for the BEMU infrastructural costs at Drogheda.

This compares to a cost of [REDACTED] for 52 EMU's.

The proposed number of 13 HLU BEMUs is based on a direct replacement of the current number of services and the additional capacity to be provided by the 41 cars that will serve the Northern Line to Drogheda, please refer to Appendix 1 for a draft cascading strategy. If included within the first call-off, and the approval to proceed with the infrastructure is made, the BEMUs could be operating by Q2 2025. The latest programme shows the electrification of the Northern Line to Drogheda by mid-2028.

The introduction of the BEMUs would facilitate the following:

- Capacity increases on the Northern line due to the BEMU fleet;
- Introduction of a zero emissions fleet onto the Northern Line much earlier than if EMUs were introduced due to the current programme of OHLE works (c.2.5-3 years);
- Some of our busiest DMU based commuter lines would receive a capacity boost earlier than would otherwise be possible due to the ability to cascade the existing Drogheda DMU and ICR fleet, an example of which is set out in Appendix 1;

- Delivers IÉ and DART+ Programme climate related impacts earlier, and shows Government commitment to implementing the Climate Action Plan;
- Does not have a detrimental effect on the DART+ Preliminary Business Case BCR which remains stable compared to EMU only scenario;
- Safeguards an increase in fleet for the Northern and other lines if, for whatever reason, DART+ funding is cut short during later DART+ projects.

Additionally, IÉ will get to see first-hand the capability and performance in operation of BEMUs. As the commuter belt widens ever further and the boundaries of the GDA expand due to projected increased passenger demand, the role of the BEMU can be critical in providing both additional frequency and capacity to stations within our commuter routes but outside of the scope of DART+.

In addition to potentially providing a shuttle service between Drogheda and Dundalk, the BEMU'S will have the flexibility to increase capacity and frequency between the following:

- Greystones and Wicklow
- Hazelhatch and Sallins
- Maynooth and Enfield (Mullingar preferably but this may possibly be too great a distance).

4.3 Risks Associated with the First Order

A key risk associated with a new fleet order of either EMUs or BEMUs, is the availability of a Train Protection System (TPS) solution to be fitted to the new fleet. A separate paper will address the TPS interface risks and mitigations.

Another consideration associated with the first order, should it not contain BEMUs, would be the impact of a small order of only 6 HLUs as they will attract a significant proportion of the overall design and development costs leading to expensive unit rates which will reduce for subsequent orders. The specific impact of this will be known at contract award stage. It is likely that this size of order may be considered too small by fleet manufacturers.

4.4 Second & Subsequent Orders

The second and subsequent orders are linked to the delivery of the infrastructural projects. Given the timeline for the construction and commissioning periods for the infrastructure versus the fleet delivery and commissioning time-period which is assumed to be 3 years for 2nd and subsequent orders, there is sufficient time to place orders post the receipt of RO approval, thus removing the statutory approval stage risks. This decouples the statutory approval timeline risk from the objective of having the new fleet and infrastructure available in tandem. The key remaining risks are the construction stage risks.

Thus, an emerging second and subsequent order profile is along the following:

No	Quantum	Order Date	Delivery Date	Entry into service post commissioning	BEMU Infrastructure Commissioned	Maynooth Line Infrastructure Commissioned	Kildare Line Infrastructure Commissioned	Coastal Line Infrastructure Commissioned
1	24 EMUs / 52 BEMUs	Q2 '21	Q4 '24	From Q2 '25	Q4 '24			
2	56 EMUs	Q4 '22	Q2 '25*	From Q4 '25		Q2 '25		
3	128 EMUs	Q3 '25	Q2 '28	From Q3 '28			Mid '28**	Mid '28**

*Maynooth line infrastructure will need to be commissioned in order to receive, stable and commence commissioning of the second order.

**Opportunity exists to improve on these dates based on a revised funding profile.

While the above table gives an indicative order profile, other order profiles may need to be considered having regard to the National Development Plan review and the potential need to extend services

beyond Greystones and Hazelhatch. Accordingly, it is proposed to review and update the fleet ordering strategy incorporating updated timelines, numbers and types for the second and subsequent orders in early 2022.

Director Capital Investments, Inchicore

Appendix 1 – Cascading Strategy



