

23<sup>rd</sup> November 2018

Email: [REDACTED]

Re: FOI Request Response [IE\_FOI\_191]

Dear [REDACTED]

I refer to your request dated 14<sup>th</sup> October 2018 made under the Freedom of Information Act 2014, which was received on the 15<sup>th</sup> October, for records held by Iarnród Éireann.

**Request:**

Please provide details of any draft timetables and business cases for potential improved timetables for services to Greystones. It does for example seem that it is possible to have 2tph Commuter service as far as Wicklow in both directions at peak or at least this frequency in peak direction, with a 1 train per hour all day service to Wicklow seeming more than feasible. This would take a lot of traffic off the roads and Greystones would see a maximum of 25mins between services at peak, also gaining a significant number of seats to trains that at the moment do not have any space, for a town that is rapidly growing.

I would also ask for any business plan that has been produced for delivering a two track solution between Bray and Greystones and any business plan for a two track and electrification solution between Greystones and Wicklow, which would facilitate a high frequency service. It is presumably feasible to dig a tunnel from Bray to Greystones and the Irish government must have considered this at some time.

I, Lynette O'Toole, have now made a final decision to grant your request on 23<sup>rd</sup> November 2018.

You have sought access to the records as listed above and I consider this an appropriate form of access in this case. Accordingly, a copy of the records is now attached including a copy of the schedule to these records.

**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](mailto: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 01, 7034293.

Yours sincerely,



**Ms. Lynette O'Toole**

**Decision Maker**

A freedom of information request (Ref IE\_FOI\_191) was forwarded to New Works specifically relating to the following:

*"I would also ask for any business plan that has been produced for delivering a two track solution between Bray and Greystones and any business plan for a two track and electrification solution between Greystones and Wicklow, which would facilitate a high frequency service. It is presumably feasible to dig a tunnel from Bray to Greystones and the Irish government must have considered this at some time."*

This matter was researched with New Works Programme Managers and the Chief Civil Engineer's Office to determine what, if any information, was available. The information provided below is collated based on responses received.

1. Business plan that has been produced for delivering a two track solution between Bray and Greystones.

**Response:** Iarnród Éireann has not prepared any business plan for two tracking between Bray and Greystones.

2. Business plan for a two track and electrification solution between Greystones and Wicklow

**Response:** Iarnród Éireann has not prepared any business plan for two tracking or electrification between Greystones and Wicklow.

3. Feasibility study for new tunnel from Bray to Greystones

**Response:** Iarnród Éireann has not prepared a feasibility study for a new tunnel from Bray to Greystones.

### **Rosslare Line Capacity Feasibility Study (2011)**

In 2011, at the request of the National Transport Authority, Iarnród Éireann conducted a feasibility study for providing additional capacity on the Rosslare Line south of Bray.

This line capacity study concluded that:

- The single track rail section between Bray and Greystones cannot be feasibly widened to two track on the existing alignment in the short to medium term. To provide two tracks between Bray and Greystones

would require new tunnels around Bray Head or a new tunnelled alignment, neither of which was economically appraised in the study;

- Increasing outer commuter train services on the Rosslare Line is complicated by the level crossing conflicts between Dublin City Centre and Bray Station (five level crossings between Lansdowne Road to Merrion Gates and one level crossing north of Bray Station).
- An additional service could be accommodated in the timetable (2011) for an AM citybound and PM southbound train, subject to business case, rolling stock availability and staffing requirements;
- An outer commuter train running from Wicklow or Arklow to Greystones could be accommodated within the timetable (2011) and infrastructure. This train would terminate at Greystone and be used as a passenger feeder for onward DART services.

A copy of the 2011 Line Capacity Feasibility Study is attached.

A freedom of information request (Ref IE\_FOI\_191) was forwarded to RU specifically relating to the following:

*"Please provide details of any draft timetables and business cases for potential improved timetables for services to Greystones. It does for example seem that it is possible to have 2tph Commuter service as far as Wicklow in both directions at peak or at least this frequency in peak direction, with a 1 train per hour all day service to Wicklow seeming more than feasible. This would take a lot of traffic off the roads and Greystones would see a maximum of 25mins between services at peak, also gaining a significant number of seats to trains that at the moment do not have any space, for a town that is rapidly growing."*

**Response:**

I have referred to my records and I can confirm that I do not hold any timetable or business case proposals relating to increased service levels to Greystones. The current DART service level to Greystones of 2 trains per hour is the maximum which can be achieved given the single line section of the route and the journey time of 10 minutes between Bray & Greystones.

The operation of off peak commuter services to or beyond Greystones by Diesel Commuter trains may be possible however given that this would be off peak traffic (there is currently no rollingstock available for additional peak traffic) it is unlikely even at a minimum to cover operating costs. Unfortunately despite the significant uplift in passenger journeys on our services particularly at peak times, Iarnród Éireann still finds itself in a negative financial position and as such could not consider the addition of services which do not at an absolute minimum achieve break even.

## **SOUTH EASTERN LINE CAPACITY STUDY**



**IARNRÓD ÉIREANN**

**NEW WORKS DEPARTMENT**

**NOVEMBER 2011**

## South Eastern Line Capacity Study

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## 1 Background

In late 2010 the NTA published the *Greater Dublin Area Draft Transport Strategy 2011-2030 "2030 vision"*. This draft strategy deals with all aspects of public transport in the GDA and details specific measures for all modes in the period 2011 to 2030 to meet projected growth and demand.

The analysis of heavy rail states:

***"heavy rail will also have a crucial role in serving projected large scale trip intensive development in Designated Towns and Designated Districts including along the Southeastern corridor in the Metropolitan Area (Dun Laoghaire and Bray) and Hinterland Area (Wicklow and Arklow).***

***Rail services south of Greystones currently operate on a single track, seriously impacting on the service level that can be provided. Local sections of additional track south of Bray to enable trains south of Bray to pass each other would facilitate the introduction of additional services.***

***Appropriate Assessment of this Strategy has identified the possibility that development of these "passing loops" or additional track may have impacts in relation to Nature 2000 sites".***

From this analysis Rail Measure 5 was defined as:

***The Authority will seek the closure of level crossings north of Bray on the Southeastern rail corridor, subject to assessment of benefits to rail operations and identification of an economically beneficial and environmentally acceptable solution in each case. The Authority will seek the provision of additional track and other measures on the single rail track south of Bray to facilitate additional rail services to Greystones, Wicklow and Arklow, subject to feasibility, environmental considerations and economic assessment.***

In March 2011 NTA requested that Iarnród Éireann carry out a feasibility study into the provision of additional capacity, particularly by using additional track or passing loops, in order to provide additional services in the future.



## South Eastern Line Capacity Study

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This department commenced the study in June 2011 and a steering committee type approach was used, with monthly meetings between representatives of the NTA and the project team held in order to discuss progress and agree the next steps.

### **1.1 Project Execution Plan**

The agreed approach for the feasibility study was to examine the current infrastructure and timetable, identifying where capacity constraints exist. The next step was to identify potential service expansion within those constraints, and finally to identify any infrastructure modifications which could open up additional capacity on the route.

## 2 Existing Services

The South Eastern line from Dublin to Rosslare Europort caters for the following passenger services:

- DART: Electric Multiple Units (EMU)
- Commuter: Diesel Multiple Units (DMU)
- InterCity: DMU including Inter City Railcars (2200's)

### 2.1 DART

DART services run from both Malahide and Howth in the north, through the city centre (Connolly, Tara St and Pearse), to Bray and Greystones in the south. Currently a "clockface" service operates from both Bray and Greystones. 4 trains per hour (tph) run through the city to Bray, with every second service continuing to Greystones. For passengers travelling from Bray, there is a departing citybound DART every 15 minutes. For passengers from Greystones, there is a departure every 30 minutes, on the half hour (e.g. 0800, 0830 etc).

The southern terminus of the DART is alternated between Bray and Greystones due to












- a) capacity constraints on the single line section (discussed later),
- b) no stabling capacity or crew facilities at Bray, and
- c) passenger demand

### 2.2 Commuter & Intercity











There is a mixed service provided south of Greystones. Some services are provided for peak hour commuters and run from Gorey or Wexford into the city, stopping at all outer stations and some DART area stations. Other services run to Wexford and Rosslare Europort.

The tables below illustrate the current timetabled services on the entire south eastern line (as per timetable introduced October 2011). Note that there are currently two services in the AM peak which could be considered as commuter services i.e. arriving into the city by 9 a.m.

## South Eastern Line Capacity Study

		 MON TO FRI	 MON TO FRI	 SAT ONLY	 MON TO SAT	 MON TO SAT	 MON TO SAT
ROSSLARE EUROPORT  	Dep	....	05.35	....	07.20	12.55	17.55
Rosslare Strand	Dep	..	05.40	..	07.24	13.01	18.01
WEXFORD O'Hanrahan	Dep	..	05.59	..	07.43	13.20	18.20
Enniscorthy	Dep	....	06.23	....	08.04	13.41	18.44
Gorey	Dep	05.55	06.45	06.45	08.24	14.01	19.03
Arklow	Dep	06.08	07.00	07.00	08.37	14.13	19.15
Rathdrum	Dep	06.26	07.18	07.18	08.53	14.30	19.31
Wicklow	Dep	06.38	07.33	07.33	09.04	14.41	19.42
Kilcoole	Dep	06.48	07.44	07.44	....	....	....
Greystones	Dep	06.54	07.51	07.51	09.23	14.54	19.54
Bray Daly	Dep	07.04	08.02	08.02	09.32	15.03	20.04
Dun Laoghaire Mallin 	Dep	07.22	08.20	08.20	09.50	15.21	20.22
Blackrock	Dep	07.28	08.24	08.26	....	....	....
Lansdowne Road	Dep	07.34	08.34	08.35	..	..	..
Grand Canal Dock	Dep	....	....	....	....	....	....
Dublin Pearse	Dep	07.39	08.39	08.40	10.08	15.38	20.37
Tara Street	Dep	07.41	08.42	08.44	10.10	15.40	20.39
DUBLIN Connolly  	Arr	07.46	08.46	08.47	10.15	15.45	20.44
		....	To Dundalk	To Dundalk	....	....	....

**Table 1: Timetable October 2011- SE Stations to City**

		 MON TO SAT	 MON TO SAT	 MON TO FRI	 MON TO FRI	 MON TO SAT
DUBLIN Connolly  	Dep	09.40	13.36	16.37	17.36	18.38
Tara Street	Dep	09.43	13.38	16.39	17.38	18.40
Dublin Pearse	Dep	09.46	13.41	16.42	17.41	18.43
Grand Canal Dock	Dep	....	....	....	....	....
Lansdowne Road	Dep	..	..	..	..	..
Blackrock	Dep	....	....	....	....	....
Dun Laoghaire Mallin 	Dep	09.58	13.56	16.58	17.58	18.57
Bray Daly	Dep	10.17	14.17	17.17	18.17	19.17
Greystones	Dep	10.27	14.26	17.27	18.27	19.27
Kilcoole	Dep	....	....	17.31	18.32	19.31
Wicklow	Dep	10.40	14.41	17.42	18.44	19.42
Rathdrum	Dep	10.53	14.54	17.56	18.59	19.54
Arklow	Dep	11.08	15.09	18.10	19.15	20.10
Gorey	Dep	11.20	15.22	18.23	19.30	20.22
Enniscorthy	Dep	11.39	15.41	18.43	19.51	20.41
WEXFORD O'Hanrahan	Dep	12.02	16.04	19.04	20.12	21.04
Rosslare Strand	Dep	12.19	16.21	19.19	..	21.21
ROSSLARE EUROPORT  	Arr	12.26	16.26	19.25	....	21.28

**Table 2: Timetable October 2011- City to SE Stations**

## South Eastern Line Capacity Study

### 2.3 Current Demand

There are currently two commuter services into Dublin from Wicklow/North Wexford in the AM peak. These trains arrive into Connolly at 0746 and 0847.

An annual passenger census is carried out on all IE services to determine the patronage on those services. The most recent census was carried out in November 2010, and the figures for the south-eastern line are presented in the tables below.

	<b>Dep.</b>	<b>Boarded</b>	<i>fr E'Corthy</i> <b>Dep.</b>	<b>Boarded</b>	<i>fr Ross</i> <b>Dep.</b>	<b>Boarded</b>
<b>GOREY</b>	0555	<b>7</b>	0645	<b>27</b>	0855	<b>21</b>
<b>ARKLOW</b>	0608	<b>7</b>	0700	<b>43</b>	0911	<b>33</b>
<b>RATHDRUM</b>	0626	<b>6</b>	0718	<b>37</b>	0928	<b>18</b>
<b>WICKLOW</b>	0638	<b>31</b>	0733	<b>78</b>	0939	<b>25</b>
<b>KILCOOLE</b>	0648	<b>16</b>	0744	<b>24</b>		
<b>GREYSTONES</b>	0654	<b>59</b>	0750	<b>93</b>	0952	<b>24</b>
<b>BRAY</b>	0705	<b>52</b>	0801	<b>75</b>	1001	<b>38</b>
<b>PEARSE arr</b>	0739		0840		1037	
<b>CONNOLLY arr</b>	0746		0847		1044	

**Table 3: PASSENGER CENSUS – Thur 11<sup>th</sup> November 2010 – NORTHBOUND AM PEAK**

	<b>Dep. Ex Connolly</b>	<b>Alighted</b>	<i>fr Maynooth</i> <b>Dep.</b>	<b>Alighted</b>	<b>Dep. Ex Connolly</b>	<b>Alighted</b>
<b>CONNOLLY</b>	1630		1730		1830	
<b>PEARSE</b>	1634		1734		1834	
<b>BRAY</b>	1715	<b>35</b>	1815	<b>110</b>	1916	<b>18</b>
<b>GREYSTONES</b>	1726	<b>75</b>	1826	<b>145</b>	1926	<b>53</b>
<b>KILCOOLE</b>	1731	<b>14</b>	1831	<b>2</b>	1931	<b>10</b>
<b>WICKLOW</b>	1741	<b>43</b>	1844	<b>48</b>	1941	<b>13</b>
<b>RATHDRUM</b>	1754	<b>21</b>	1858	<b>32</b>	1955	<b>10</b>
<b>ARKLOW</b>	1810	<b>47</b>	1914	<b>24</b>	2011	<b>9</b>
<b>GOREY</b>	1822	<b>34</b>	1930	<b>21</b>	2024	<b>5</b>

**Table 4: PASSENGER CENSUS – Thur 11<sup>th</sup> November 2010 – SOUTHBOUND PM PEAK**

## South Eastern Line Capacity Study

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	<b>Total Boardings Northbound</b>	<b>Total Alightings Southbound</b>
<b>GOREY</b>	<b>74</b>	<b>93</b>
<b>ARKLOW</b>	<b>118</b>	<b>123</b>
<b>RATHDRUM</b>	<b>73</b>	<b>86</b>
<b>WICKLOW</b>	<b>134</b>	<b>125</b>
<b>KILCOOLE</b>	<b>40</b>	<b>27</b>
<b>GREYSTONES*</b>	<b>195(1459)</b>	<b>283(1230)</b>
<b>BRAY*</b>	<b>301(2510)</b>	<b>270(2635)</b>

**Table 5: DAY TOTAL BOARDINGS & ALIGHTINGS SE LINE – Thur 11<sup>th</sup> November 2010**

**(\*figures in brackets denote DART)**

### **3.0 Existing Infrastructure**

The railway from Dublin to the south eastern terminus at Rosslare consists of double track as far as Bray, and single track from Bray to Rosslare. Passing loops are provided at all stations south of Bray, except the halt at Kilcoole. The railway is electrified as far as Greystones.

The line is automatically signalled for its entire length, and utilises a mix of track circuitry and axle counters for train detection.

#### ***City Centre to Bray (12 miles)***

This section is electrified double track. It runs predominantly through built up residential and commercial areas, with sections on the coast and through cutting.

There are a number of major level crossings along the route at Lansdowne Rd., Serpentine Ave., Sandymount Ave., Sydney Parade, Merrion Gates and Bray. These are all manually controlled CCTV crossings.

Separate studies have been carried out to determine the feasibility of closing these crossings permanently, with a more detailed study undertaken for the closure of Merrion Gates.

#### ***Bray to Greystones (4.75 miles)***

The railway becomes single track immediately south of Bray station and sidings, before routing around Bray Head and through four tunnels (Bray Head Tunnels). Greystones station has two platforms with the facility for passing trains immediately south of the station.

Bray to Greystones line diagram (Appendix 1) shows the track configuration and describes the main features with regard to the provision of second track.

In general it is unfeasible to provide a second line for this section due to the topography and four tunnels around Bray head, where any additional track would require new tunnels or a new alignment.

The section from the southern portal of tunnel 4 into Greystones station (approx 2.5km) has potential for second track provision, however with the following major considerations:

- temporary and permanent land-take required;
- considerable earthworks required;
- for the southern 400m into Greystones widening of the rock cutting would be required in a built up area with major planning and environmental challenges associated (see Photographs 1 & 2 below);
- Two road bridges would require widening or rebuilding.





**Photograph 1: Single track in rock cutting north of Greystones station**



**Photograph 2: View North from Greystones station**

## South Eastern Line Capacity Study

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As any track doubling of this isolated section would be of limited benefit, and considering the likely cost implications, it was decided not to consider this in any further detail for this study.

### ***Greystones to Wicklow (11.25 miles)***

From Greystones to Wicklow the line is single track and runs predominantly adjacent to the coast, with rock revetments and sand dunes defining the boundary between the railway and the foreshore. For the last kilometre into Wicklow the line veers gradually inland before taking a sharp curve into Wicklow station.

This section of the line runs through an area of Special Conservation.

At 2.75 miles south of Greystones, Kilcoole station is a single platform halt, with no facility for trains to pass. Wicklow station has two platforms and a loop siding. Trains are regularly scheduled to pass here.

### ***Wicklow to Arklow (20.75 miles)***

The railway runs inland from Wicklow, passes through Rathdrum station after 8.75 miles, before veering coastwards again into Arklow. Both Rathdrum and Arklow stations have two platforms with the facility to pass trains. This section of the route contains a number of permanent speed restrictions, mainly due to curvature. The section between Rathdrum and Arklow is particularly winding, and contains a number of significant bridges.

## **3.1 Linespeed / Journey Times**

- ***Connolly to Bray (DART area)*** has a maximum line speed limit of 60mph, with restrictions. In practice, the achievable running speeds for outer commuter/Intercity trains in this area are limited by having to share the line with DART stopping services ahead. This will be exacerbated by future DART intensification.
- ***Bray to Greystones*** varies between 40 and 60mph. This is dictated by curvature and the permitted speeds through the Bray head tunnels.
- ***Greystones to Wicklow*** is 70mph
- ***Wicklow to Wexford*** is 70mph (110kph) generally, with a number of permanent speed restrictions in place. These are predominantly through stations, around low radius curves, at bridges and some level crossings.

Note that commuter DMU railcars (2700, 2800, 2900 series) have a maximum operating speed of 70mph.

Average journey times from the SE stations to Connolly are given in the table below.



## South Eastern Line Capacity Study

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<b>from</b>	<b>Total journey time to Connolly</b>
<b>BRAY</b>	45mins
<b>GREYSTONES</b>	54mins
<b>WICKLOW</b>	1hr14
<b>RATHDRUM</b>	1hr20
<b>ARKLOW</b>	1hr42
<b>GOREY</b>	1hr56

**Approximate Journey Times to Connolly from SE Line stations. Note these times can vary by around +/- 4 minutes due to scheduling variations.**

### **4.0 Current capacity constraints**

The current level of service provided on the SE commuter line south of Greystones is based on passenger demand. However, any further expansion of the service in the future would be restricted by a number of factors.

#### **City to Bray**

The capacity in this section is theoretically 12 trains per hour. However the presence of the level crossings described earlier effectively limits this to 10 trains per hour.

#### **Bray to Greystones**

The railway is single track for the 4.75mile section between Bray and Greystones. As outlined earlier it would not be feasible to provide an additional track for this section. Currently 2 DART trains per hour run in each direction in this section, with a run time of approximately 10 minutes.

Additionally the commuter and inter-city services slot into an available path between the DARTs. Scheduling any further services in this section would not be possible without adding a high degree of unreliability to the timetable.

#### **Greystones to South-East**

This is single track throughout, apart from passing loops at Greystones, Wicklow, Rathdrum, Arklow, Gorey, Enniscorthy, Wexford and Rosslare. All current services are scheduled such that passing trains will meet at one of these stations.

### **4.1 Timetable Modelling**

To facilitate this study, a timetable and simulation model was constructed using the RailSys software package.

The existing infrastructure on the line between Connolly station and Rosslare Europort was constructed using base data sourced from signalling plans, gradient charts and the working timetable.

The existing timetable (DART, Commuter and InterCity) was inputted, along with the characteristics (e.g. acceleration rates, maximum speed etc) of each train type operating on the route.

### 5.0 Service Expansion Options

It was decided to investigate what level of service expansion could be provided based on the existing capacity of the line, and without the provision of any additional tracks.

Initial discussions with IÉ Operations gave rise to two potential service expansion options based on the existing constraints-

- Additional services from Arklow or Gorey into the city. There may exist demand for an additional service in the AM peak northbound, and PM peak southbound. Off-peak demand would not warrant running lightly laden DMUs into the DART network.
- A regular service which would operate from Arklow and/or Wicklow into Greystones or Bray offering an efficient transfer to DART services – a “DART feeder shuttle”

Both of these options were then considered for further analysis using the timetable simulation modelling.

#### 5.1 Additional Direct to City Centre Services

There are currently two commuter services into Dublin from Wicklow-Nth Wexford in the AM peak. These trains arrive into Connolly at 0750 and 0847. An additional service, between these two services may be attractive to commuters. Such a service was inputted into the model and it is theoretically possible to operate an additional service between Connolly and Gorey. The morning peak service would depart Gorey at 06:28 to arrive into Connolly at 08:15, with an additional evening service departing Connolly at 17:00 to arrive into Gorey at 18:47. Table below shows a possible timetable, alongside the existing peak hour services.

## South Eastern Line Capacity Study

<b>INBOUND A.M. PEAK</b>	<b>Current Dep.</b>	<b>Possible Dep.</b>	<b>Current Dep.</b>	<b>Current Dep.</b>
<b>GOREY</b>	0555	<b>0626</b>	0645	0825
<b>ARKLOW</b>	0608	<b>0639</b>	0700	0837
<b>RATHDRUM</b>	0626	<b>0655</b>	0719	0854
<b>WICKLOW</b>	0638	<b>0707</b>	0734	0905
<b>KILCOOLE</b>	0648	<b>0717</b>	0744	-
<b>GREYSTONES</b>	0654	<b>0722</b>	0751	0923
<b>BRAY</b>	0705	<b>0736</b>	0802	0933
<b>PEARSE arr</b>	0738	<b>0809</b>	0839	1007
<b>CONNOLLY arr</b>	0746	<b>0817</b>	0846	1015

### Possible Additional Service in AM Peak

<b>OUTBOUND P.M. PEAK</b>	<b>Current Dep.</b>	<b>Possible Dep.Dep.</b>	<b>Current Dep.</b>	<b>Current Dep.</b>
<b>CONNOLLY dep</b>	1637	<b>1700</b>	1736	1838
<b>PEARSE arr</b>	1641	<b>1705</b>	1740	1842
<b>BRAY</b>	1717	<b>1745</b>	1815	1915
<b>GREYSTONES</b>	1727	<b>1755</b>	1826	1926
<b>KILCOOLE</b>	1731	<b>1759</b>	1831	1931
<b>WICKLOW</b>	1742	<b>1810</b>	1843	1941
<b>RATHDRUM</b>	1756	<b>1824</b>	1858	1953
<b>ARKLOW</b>	1811	<b>1839</b>	1914	2009
<b>GOREY arr</b>	1823	<b>1851</b>	1929	2022

### Possible Additional Service in PM Peak

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### Notes:

- This is based on the current number of electrified services north of Bray i.e. 4 tph.
- This additional service would require the use of additional rolling stock and drivers.

In the future, once DART services into Bray are expanded beyond 4 tph, which would occur once the DART Underground and Maynooth line electrification projects are delivered, additional capacity would need to be made available on the city centre to Bray section in order to protect the outer commuter and intercity paths. This would be done primarily through the closure of level crossings (outlined earlier) and upgrading of the signalling from the city centre to Bray.

A business case for additional services has not been established as part of this study.



### 5.2 DART Feeder Shuttle

The provision of a DART feeder shuttle from Wicklow and possibly Arklow was considered as an option to be investigated as an alternative to running direct services into the city.

The following assumptions were made before detailed modelling was undertaken:

- Inter City services from Dublin to Gorey/Wexford/Rosslare would be maintained at the current level of service.
- Existing service of 2 DART trains per hour from Bray to Greystones, with 10 minute turn around at Greystones would be maintained and not increased due to the capacity issues on the section.
- Turnback would be considered for either Bray or Greystones.

Three possible service arrangements were investigated and these are outlined below.

#### ***Option 2.1: Hourly "clockface" Wicklow-Greystones service***

Modelling has determined that it would generally be possible to provide a service from Wicklow to Greystones, hourly, which feeds into the existing clockface DART service. This train would leave Wicklow at the same time each hour. There are a number of minor conflicts with existing IC services which would need to be resolved with minor modifications to the timetable.

The interchange time for passengers at Greystones would be 7.5 minutes, and the train would require a short turnaround time of 5 minutes. There would be significant dwell times for this train at Wicklow station before recommencing the cycle. This could be facilitated using the passing loop at Wicklow.

This train would use platform 2 at Greystones, but an additional new turnback platform adjacent to platform 2 (platform 3) would be desirable for full flexibility to allow InterCity trains to pass and give some train stabling capacity. Platform 1 would continue to handle all DART movements.

It is considered that Greystones is a more suitable turnback location than Bray for the following reasons:

- Existing DART services between Bray and Greystones should be preserved thereby restricting the number of paths for additional trains in that section;
- Running additional commuter trains behind DARTs would provide an element of service duplication, and fuel inefficiency.

## South Eastern Line Capacity Study

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This service could be provided using one train set, and it is assumed that a short set of 2 cars would be sufficient. Therefore any additional turnback platform would not need to be greater than 50m in length. The technical aspects of this are discussed later.

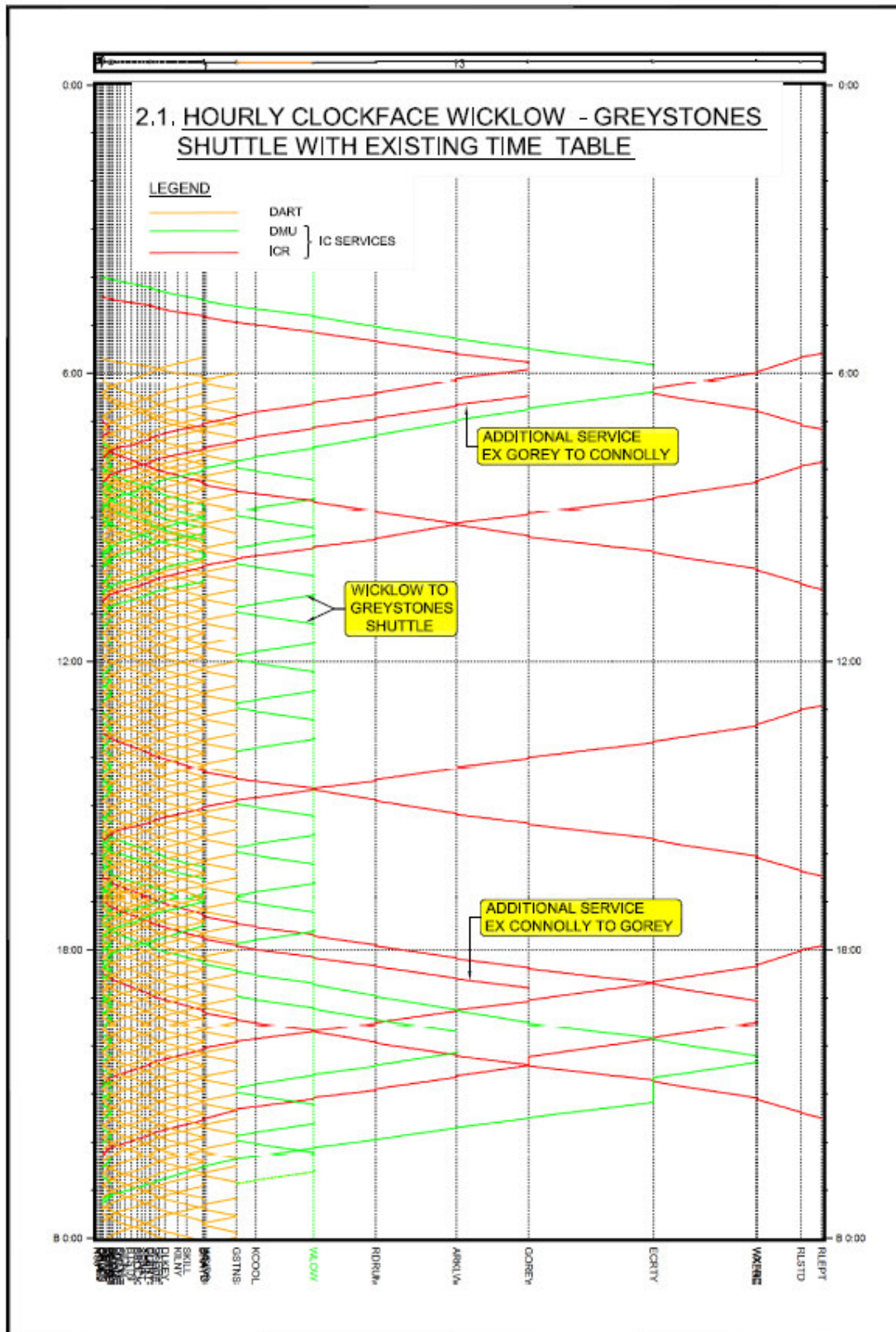
It is assumed that the shuttle service would not run in the peak, as the existing direct services into the city would be maintained as per the current arrangements.

With this arrangement, and including the existing level of service and the additional service described in 5.1, the number of northbound services from Wicklow (both direct to city and DART shuttle) could be increased to 18 trains per day.

The RailSys model for this service is shown overleaf.



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### ***Option 2.2: Alternating service Wicklow to Bray/Greystones and Arklow to Bray/Greystones***

This option considered an alternating shuttle arrangement for Wicklow and Arklow, whereby the train would operate Wicklow-Greystones-Wicklow in the first sector, then Wicklow – Greystones – Arklow in the second cycle, and so on.

It is difficult to provide a clockface shuttle service, however an irregular service such as that shown on the model below could be provided.

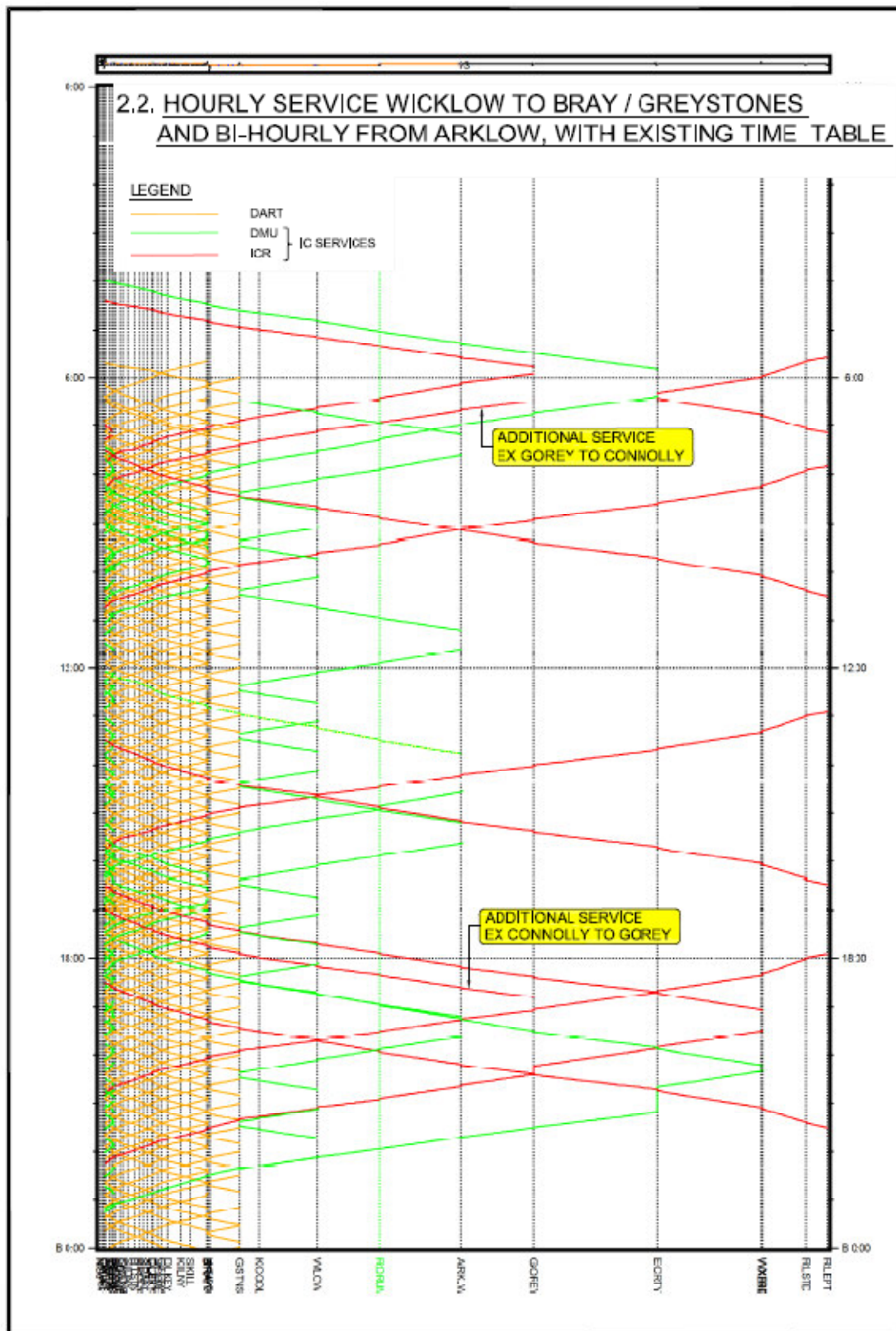
With this arrangement, and including the existing level of service and the additional service described in 5.1, the number of northbound services from Wicklow (both direct to city and DART shuttle) could be increased to 18 trains per day.

Further modelling could be carried out to identify potential track and signalling alterations which would be required in order to achieve an “ideal” clockface and regular service.

The existing InterCity timetable would have to be altered to accommodate this, and this may not be possible due to the limited paths available in the DART area.

The RailSys model for this service is shown overleaf.

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### ***Option 2.3: Bi-Hourly service Arklow to Greystones***

This is a modification of Option 2.1 where one train set would operate a shuttle service into Greystones from Arklow, every two hours. Passengers from Arklow, Rathdrum, Wicklow and Kilcoole would have a connection to the DART every two hours during the off peak. The existing peak hour direct to/from city services would be maintained as per the current arrangement.

This service pattern is feasible with minimal modifications to the existing timetable.

With this arrangement, and including the existing level of service and the additional service described in 5.1, the number of northbound services from Wicklow (both direct to city and DART shuttle) could be increased to 14 trains per day.

The RailSys model for the service is shown overleaf.





### 6.0 Turnback Facility at Greystones

Modelling as described earlier has shown that a number of service expansion options could be implemented without the need to provide additional sections of track or passing loops. The DART feeder shuttle into Greystones would however benefit from the provision of an offline turnback platform i.e. DART trains would continue to use platform 1 as their terminus and turn-around, while platform 2 would continue to be used as the mainline platform for trains from the city continuing to the south east. The shuttle service would be able to operate into and out of platform 2 for most of the schedule, however the third platform would be used if three trains are in the station. It may be possible with further timetable modifications to operate a shuttle service without the third platform, however for operational flexibility in the long term it would be desirable.



**Greystones Station – Platform 1 in the foreground caters for all DART services; platform 2 is accessed by the footbridge and is used for other passing trains. The permanent way sidings are at the top of the photo, along with the signalling interlocking building**

## South Eastern Line Capacity Study

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### ***Greystones Turnback – "Platform 3"***

The current layout at Greystones lends itself to the development of a turnback platform. Sidings behind the southbound platform (platform 2) which are used for permanent way maintenance lead directly onto the southbound mainline, and movements onto and off this siding would not conflict with DART movements. It is possible to construct a platform face off the back of platform 2 over a length of around 45m. This is sufficient length to cater for a 2 piece railcar set.

The sidings are currently used as an access for permanent way maintenance plant. This is an important access point as the DART terminus and location at the Dublin end of the south eastern line, and would need to be maintained.

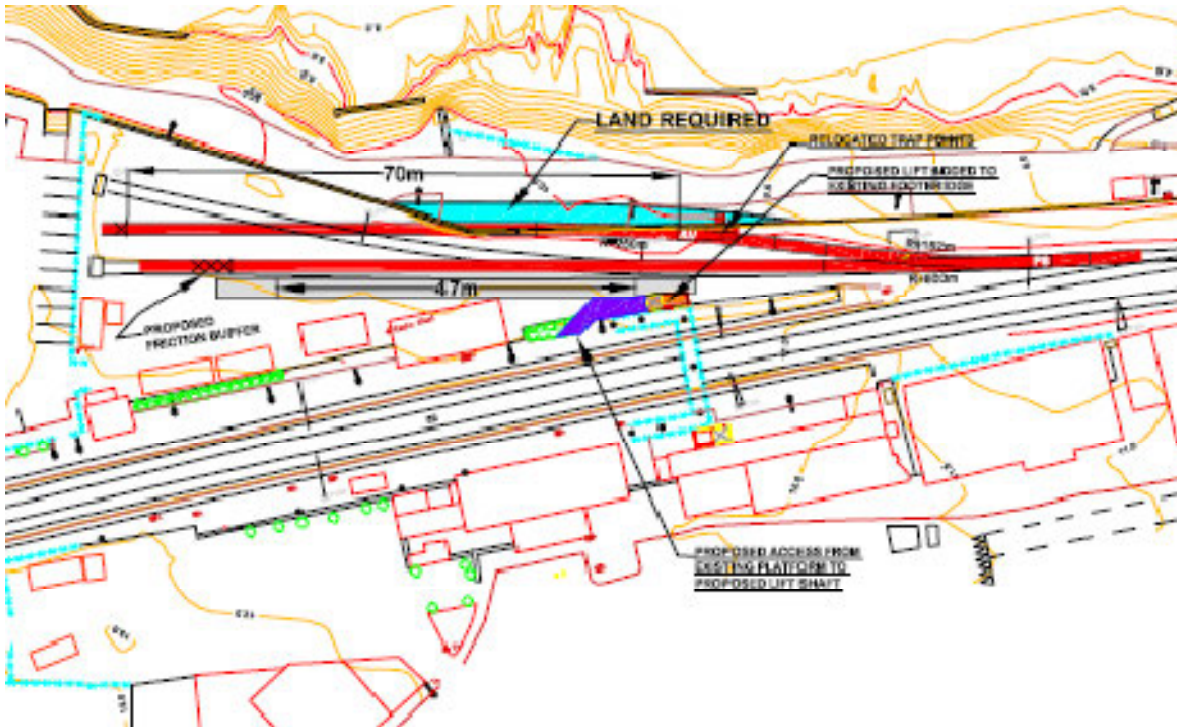
A feasible solution would be to realign the trackwork completely, and provide two dedicated sidings – one for the passenger platform, and one for maintenance access. It is likely that a small portion of land (currently footpath) would need to be procured from the local authority in order for the layout to comply with all track design and safety requirements. Substantial signalling, telecommunications and electrical facilities along the back of platform 2 are also a constraint and would need to be maintained.

Passengers interchanging between DART and shuttle services would cross to/from platform 1 and the main station entrance using the existing footbridge. Lifts for persons of reduced mobility are planned to be installed in the near future under a separate project (Iarnród Éireann have applied for planning permission for a scheme), therefore modification works to the bridge would not be required at the time of turnback platform construction.

An outline scheme plan is shown below.



## South Eastern Line Capacity Study



**Potential Turnback Platform with Maintenance Siding at Greystones**



**Current Sidings Layout at Greystones – Southbound platform is to the left in the photograph**



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**View South from Greystones – Siding on left**

### 7.0 Conclusions

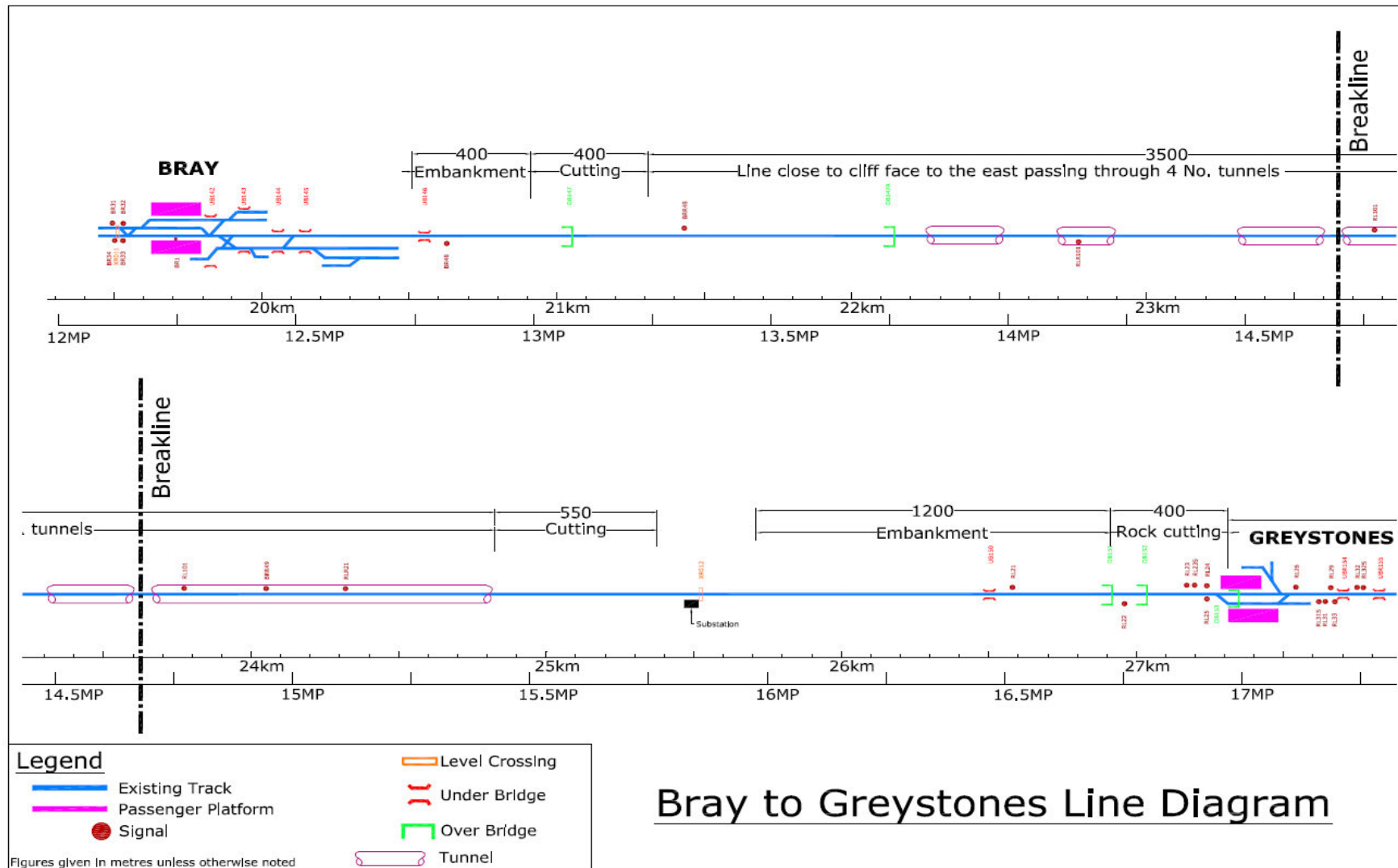
1. The main capacity constraint on the south eastern line is the single track DART section between Bray and Greystones. This constraint cannot be feasibly removed.(in the short to medium term)
2. An additional direct service in the AM peak citybound, and PM peak southbound could be accommodated within the existing timetable, subject to business case, rolling stock and staffing requirements.
3. In the long term, once major projects like DART Underground and Maynooth line electrification are delivered, it will become increasingly difficult to fit outer commuter services into the southern DART area without freeing further capacity. This would be done by re-signalling and level crossing closures.
4. A DART feeder shuttle, running from Wicklow, and possibly Arklow into Greystones, can be accommodated within the existing timetable and infrastructure. A dedicated turnback platform facility at Greystones would be desirable in this scenario in order to provide operational flexibility.
5. It is assumed that the current DART service into Greystones will be maintained and not curtailed.
6. Current or future passenger demand for such a feeder service has not been assessed for this study.



## Appendix 1

### Bray to Greystones Track Diagram

## South Eastern Line Capacity Study



Freedom of Information Request:  
Schedule of Records for IE\_FOI\_191 : 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
1	06.11.18	FOI_191_Response (RU)	1	Grant		
2	06.11.18	FOI_191_Response (NW)	2	Grant		
3	06.11.18	Final Report - SE Commuter Line - ISSUED_FINAL	32	Grant		

Signed 

Freedom of Information / Data Protection Executive