

CRR-G-006-C Guidelines for the Design Railway Infrastructure and Rolling Stock -Section 5 Level Crossings (30/05/2022) Para 5.1.4 States: "Level Crossings should be closed where possible and practicable, and the introduction of new level crossings resisted."

# **LEVEL CROSSINGS**

The Need to Remove Level Crossings – Responses to General Submissions

### Level Crossing Statistics •

Europe but 31% of all rail fatalities.

Length o Length of Track

# CRR Railway Safety Performance in Ireland 2020 Network Rail: Enhancing Level Crossing Safety 2019 to 2029





Almost 300 people die at level crossings across Europe every year

and level crossing accidents account for 1% of road deaths in



Figure 4: Level Crossing Type vs Risk per Crossing Type



Total	917	6000
Passenger Track (km)	2033	16000
er Level Crossing (km)	2.2	2.6



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The Need to Remove Level Crossings – Responses to General Submissions

Iarnród Éireann maintains a safety database for the railway network. By way of example, between 2015 and 2019 for Coolmine level crossing the database records 21 incidents that impacted on rail services, road traffic or both.





**RSA Road Collision Data** for Coolmine Level Crossing



For context, a train operating at 90km per hour travels 1,500 metres per minute and needs approximately 1,600 metres to come to a full emergency stop.

# **LEVEL CROSSINGS**

The Need to Remove Level Crossings – Responses to General Submissions

# **Barrier Operation (Core time 28-34sec)**

- Strike-in Signal activated by train;
- Lights Flash, Audible Alarm (12-13sec);
- Entry Barriers Lowered (6-8sec); ٠
- Level Crossing Box Cleared (5sec+); ٠
- Exit Barriers Lowered (6-8sec); ٠
- Stop Signal Changed from Red to Green; ٠
- Train Proceeds through Level Crossing; ٠
- Barriers Lifted and vehicular movements resume. ٠

# **Issues affecting Individual Cycle Times (at Station)**

- The number of trains passing typically between 1 and 3;
- The gap between the trains <90s single cycle;
- The direction of travel; West 1692m, East 95m e.g. Coolmine Optimised;
- Express trains vs commuter trains; ●
- The presence of a train station immediately adjacent to the crossing;
- The proximity of adjacent level crossings;
- The dwell time in a station 30sec to 60sec typ;
- Train acceleration 13sec min (Coolmine);
- Traffic conditions at the level crossing which may delay the barrier closures;
- Total Min Cycle Time (1 Train) 73-79 secs EW;
- Total Min Cycle Time (1 train) 2min 32sec to 2min 38secs WE;



### Maynooth

# **Issues affecting Scope for**

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The Need to Remove Level Crossings – Responses to General Submissions

# **Existing Cycle time range**

• 2mins 15 secs - 8 mins 10 secs;

# **Line Speeds**

- Ashtown 70mph
- Coolmine 60mph
- Porterstown 70mph
- Clonsilla 60mph
- Barberstown 70mph •
- Blakestown 40mph ٠
- Max permitted running speed 60mph •

Level Crossing	Station Adjacent	Current Trains Passing (No.)	Planned Trains Passing (No.)	Uplift (%)	Current Closures (No.)	Projected Closures (No.)	Current Average Closure Duration	Current Total Closure Duration per Hour	Projected Total Closure Duration*
Ashtown (attended)	Yes	13	24	84	6	12	06:07	36:42	73:24
Coolmine (CCTV)	Yes	12	24	100	9	18	04:37	41:35	83:06
Porterstown (CCTV)	No	12	24	100	7	14	04:41	32:46	65:34
Clonsilla (attended)	Yes	12	24	100	7	14	04:25	30:58	61:50
Barberstown (CCTV)	No	9	16	78	6	11	04:21	26:03	47:51
Blakestown (CCTV)	No	7	16	128	5	11	04:46	23:48	52:26

### Table 2-3 AM Peak Railway Stats for the Level Crossings

Note: All Durations are presented in minutes and seconds per hour. Where cumulative durations in excess of 60minutes are reported this indicates the level crossing is effectively closed for the full hour.

\* Projection based on average closure timed without optimisation

Table 2-5

# Vehicular Road Traffic Counts for Level Crossings

Level Crossing	Station Adjacent	2019 AM SB Peak Veh/hr	2019 AM NB Peak Veh/hr	2019 PM SB Peak Veh/hr	2019 PM NB Peak Veh/hr
Ashtown (attended)	Yes	334	120	228	143
Coolmine (CCTV)	Yes	221	297	241	206
Porterstown (CCTV)	No	91	26	36	23
Clonsilla (attended)	Yes	202	143	116	215
Barberstown (CCTV)	No	73	20	28	43
Blakestown (CCTV)	No	3	9	9	4





The Need to Remove Level Crossings – Responses to General Submissions

- The project train service specification provides for 12 trains per hour in both directions during both the morning and evening 3 hour peak periods. A day time, off peak, 70% level of service is anticipated;
- Optimisation of the cycle time on level crossing equipment for level crossings at stations by stopping express trains would be expected to result in a 45 second saving on the existing 05mins 03secs average am cycle time and would result in full closure of the level crossing in the peak hours and may permit occasional opening off peak.
- No saving is available due to optimisation of the level crossing equipment for level crossings remote from train stations.
- The average am cycle time of 4min 36secs for such level crossings will result in the level crossings being closed for 55min 10sec of the peak hours.
- This makes no provision for rail freight services or for out of • service trains returning to the proposed depot.
- Such curtailed access across the road network during peak and off peak hours presented an unwarranted risk to road users and is considered inappropriate.

Table 2-0 AM & PM Pedestrian and Cycle Counts – CSEA Systra Oct 2019								
Crossing	Time Deried	Pedes	trians	Cyclists				
Crossing	Time Fenou	N/B	S/B	N/B	S/B			
Ashtown	AM	150	672	65	44			
	PM	574	217	53	56			
Coolmine	AM	395	103	34	35			
Coomme	PM	255	81	33	27			
	AM	5	123	1	37			
Porterstown	РМ	149	24	41	13			
Cloncilla	AM	23	15	1	2			
Clonsilla	PM	441	15	12	5			
Parharatown	AM	0	0	2	1			
Barberstown	РМ	0	0	3	0			
Blakestown	AM	0	0	1	0			
	РМ	0	2	0	2			





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**Coolmine Level Crossing: Description of the Railway Order Proposals** 







**Coolmine Level Crossing: Description of the Railway Order Proposals** 

- Coolmine Level Crossing currently closed 41mins in the peak hour;
- DART+ WEST proposes doubling the number of trains on existing Maynooth Line through the Coolmine Crossing;
- Aim to provide an effective 'turn up and ride' level of service – 5 min interval for trains;
- Extension of Peak Service to up to 6hrs each day (7 -10am, 4 - 7pm); Anticipated daytime off peak – 70% of peak service;
- On implementation Coolmine Level Crossing effectively closed:
- Unsafe to retain Level Crossing.
- Local Road Upgrades Required.



### Table 2-5 Vehicular Road Traffic Counts for Level Crossings

Level Crossing	Station Adjacent	2019 AM SB Peak Veh/hr	2019 AM NB Peak Veh/hr	2019 PM SB Peak Veh/hr	2019 PM NB Peak Veh/hr
Coolmine (CCTV)	Yes	221	297	241	206





### Table 2-6 AM & PM Pedestrian and Cycle Counts - CSEA Systra Oct 2019

Crossing	Time Period	Pedes	trians	Cyclists		
Crossing	Time Fenou	N/B	S/B	N/B	S/B	
Coolmine	AM	395	103	34	35	
	PM	255	81	33	27	































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**Coolmine Level Crossing: Description of the Railway Order Proposals** 



### Table 6-14 Operational Impact - Change in Journey Time 2028

		AM Peak			PM Peak			
Route	Direction	Do Minimum	Do Something	% Change	Do Minimum	Do Something	% Change	
Pouto C1	EB	06:07	06:09	1%	04:00	04:06	3%	
Roule CT	WB	06:16	04:38	-26%	04:58	04:10	-16%	
Douto C2	EB	06:29	06:18	-3%	05:45	05:33	-3%	
Roule C2	WB	07:56	05:47	-27%	06:24	05:40	-11%	
Douto C2	SB	05:02	04:44	-6%	05:51	05:33	-5%	
Route C3	NB	04:14	04:52	15%	04:21	04:52	12%	
Doute C4	EB	03:49	03:49	0%	03:48	03:49	0%	
Roule C4	WB	04:24	04:27	1%	04:14	04:20	2%	
Douto CE	SB	09:46	10:51	11%	08:23	08:59	7%	
Roule Co	NB	08:14	07:53	-4%	08:57	09:17	3%	

### Table 6-15 Operational Impact - Change in Journey Time 2043

		AM Peak			PM Peak			
Route	Direction	Do Minimum	Do Something	% Change	Do Minimum	Do Something	% Change	
Pouto C1	EB	07:58	09:00	13%	04:12	04:19	3%	
Route C1	WB	07:57	05:10	-35%	05:19	04:23	-18%	
Pouto C2	EB	08:05	08:32	6%	05:51	05:40	-3%	
Roule C2	WB	10:23	05:44	-45%	06:55	05:45	-17%	
Douto C2	SB	06:34	05:51	-11%	06:08	05:38	-8%	
Route C3	NB	04:13	05:56	41%	04:26	04:59	12%	
Douto C4	EB	03:49	03:51	1%	03:49	03:49	0%	
Route C4	WB	09:43	06:00	-38%	04:20	04:23	1%	
Douto CE	SB	10:22	11:46	13%	09:10	09:33	4%	
Roule Co	NB	10:54	10:34	-3%	13:06	14:02	7%	
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