

## 9.0

# Base Case - Northern Ireland Railways

## 9.0 Introduction

Northern Ireland Railways is currently a state owned, nationalised railway system and is a small, self contained rural operation of circa 330 route kms and it has limited resources. The railway company runs Intercity passenger services from Belfast to Dublin, regional passenger services to Portadown, Newry, Ballymena, Coleraine, Portrush, Londonderry and Larne; suburban and commuter services between Belfast, Bangor and Lisburn. The railway also operates some freight services between Eire and Adelaide in the Belfast suburbs. The Intercity trains and freight trains are operated in conjunction with IE. The main line between the Eire border, Belfast and Larne is part of the European Community Trans European Network (TENs).

The Intercity and freight trains are locomotive hauled; the remaining passenger trains are diesel multiple units. The system has been the target of much vandalism and more serious events as a result of the political situation in Northern Ireland. Considerable investment in the system has taken place in recent years with projects such as the Cross Border Project, Belfast Great Victoria Street Station, the new connection from Belfast Central to the Larne line and the re-habilitation of the Bleach Green to Antrim line which is currently in progress.

Like many other rural railways NIR has a high number of level crossings, 61, particularly north of Antrim where there are some 38 level crossings in 69 miles of route! It will be appreciated that this puts considerable strain on very scarce resources. The base case considers some of the level crossings in turn and proposes realistic, but possibly harsh options to reduce the number of level crossings, and thus expenditure on the NIR system. Each crossing is shown by its official name, followed by type and NI grid reference<sup>176</sup>. All OSNI map extracts are full size reproductions at a scale of 1:50000. The proposed changes to the remainder of the level crossings are shown in Appendix J.

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<sup>176</sup> Ordnance Survey of Northern Ireland Discoverer Series 1:50000 Maps, Ordnance Survey of Northern Ireland, Department of the Environment (NI), Colby House, Stranmillis Court, Belfast, UK; Sheet 4, Coleraine; Sheet 7, Londonderry; Sheet 8, Ballymoney; Sheet 9, Ballymena, Larne; Sheet 14, Lough Neagh; Sheet 15, Belfast; Sheet 20, Craigavon; Sheet 29, The Mourne. Greater Belfast Street Map 1:12000, OS of NI, 1994, ISBN 1 873819 22 6.

## 9.1 Proposed Changes

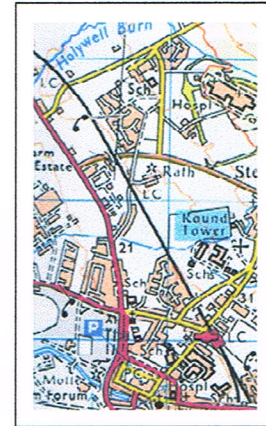
### Antrim MCG J155871

The existing gates are life expired; the road layout, bus garage, petrol station, station forecourt all make this a very difficult site to deal with; A new bridge was built just to the north some years ago to allow the level crossing to be closed but it is still there, and the crossing should be closed; a railway footbridge already allows pedestrian access.

*Figure 9.1*

*Antrim Station MCG LC, note bridge just north thereof;  
Springfarm AHB LC and Niblock AHB LC with the road under the  
railway between the two.*

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### Springfarm AHB J147881

Close; This level crossing gives access to a housing estate. The map shows a footbridge to the north which could be replaced by a road exit from the estate to the (brown) road at the rear of the estate.

### Niblock AHB J143888

Close, existing bridge at grid reference J146883, to north of Springfarm LC. Minimal inconvenience.

(For Antrim, Springfarm & Niblock, see Figure 9.1)





*Figure 9.2 (top): Slaght AHB LC; Scene of serious accident mentioned in text.*

*Note the hump in road, an ideal place to stall a car and cause another collision. Close!*

*Figure 9.3 (bottom): Ballyboyland AHB LC; Note the video camera (top rh side) recording every time the red lights flash to catch law breakers. A new road & bridge cutting out the bends, to right of existing road is suggested.*







*Figure 9.4 (top)*

*Coleraine MCB LC; from platform; note stop line for lane into main road (by gentleman, left rail)!*

*Figure 9.5 (bottom)*

*Coleraine; from signalbox window; note road junction on top of crossing, road signs attached to barrier machines.*



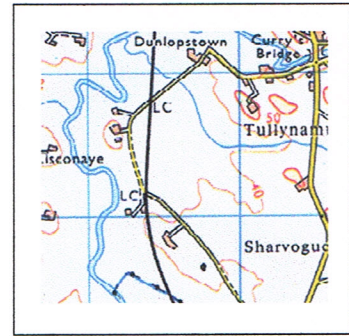


**Figure 9.6**

**Kellswater North and South LCs.**

*Two LCs in a few hundred metres! Cannot be justified for such a small settlement on the wrong side of the railway.*

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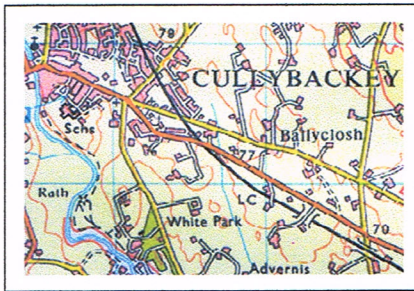


**Kellswater South**    AHB    J093962

Close permanently.

**Kellswater North**    AHB    J094968

LC should be downgraded to Signaller released, User Worked Gates with telephones. The railway should actively prosecute residents who fail to close the barriers properly. Alternatively buyout landowners and close permanently.



**Figure 9.7**

*Cullybackey South, North and Station LCs: The South LC is to the left of the '77' (brown road), the North LC immediately above (yellow road) and the Station LC to the north west (yellow road). The Station LC should remain, the other two should be closed with a bridge on the South LC and a short link road built between the '77' and the stream to left to connect the two roads together.*

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**Cullybackey South**    AHBD    D066053

Close LC; bridge, cost circa £476k.

**Cullybackey North**    AHBD    D064055

**Cullybackey Station**    AHBD    D063058

Close Cullybackey North LC; retain station crossing; convert to AHB so as to standardise with other automatic crossings. Build 250 metre link road due north from a



point 250 metres Southeast (Ballymena side) of Culleybackey South LC, to minimise local disruption. Cost circa £322k.

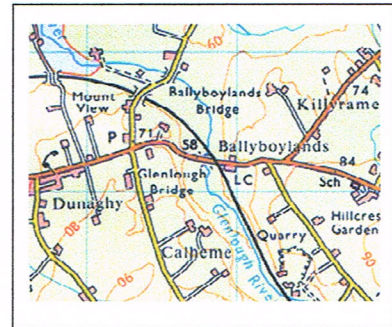
**Ballyboyland AHB** C989262 Video recording camera/s

A bridge at this location may be possible, however the road is wide, fast and there are houses to the east of the crossing which are probably too close to allow bridge approach embankment construction; a new length of road to the north of the housing and bridge over railway would straighten the road out, allow LC closure and mean circa 600 metres of new road at a cost of about £977k. The LC is a known spot for zig-zagging the barriers and as a result is fitted with video recording equipment which has successfully been used to prosecute drivers. (See Figures 9.3 & 9.8).

*Figure 9.8*

*Ballyboyland LC; suggested road should start to the left of '58' north of existing road and rejoin to the east of houses on the existing road with bridge over the railway.*

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**Clooney** AHB C694335

**Duncrun East** AHB C684328

**Duncrun West** AHB C682326

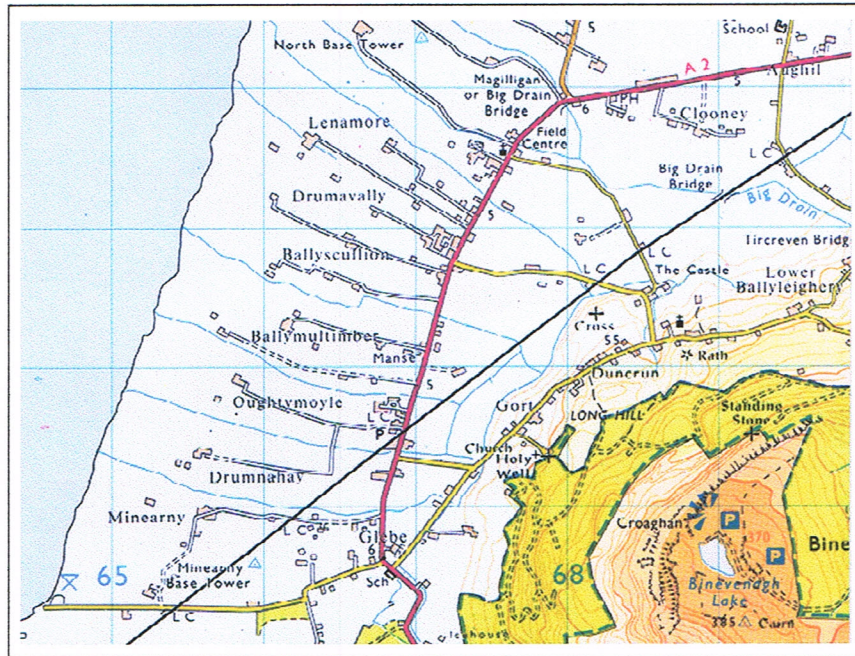
Two of these three LCs should be permanently closed; the other, Duncrun East, bridged. The two lanes at Duncrun East and Duncrun West merge with each other approximately 0.3 km south of the railway. Anyone driving in either an easterly or westerly direction can avoid crossing the railway at this point and join the A2 trunk road at Glebe or Magilligan LC. Minimum inconvenience to those wishing to cross the railway. Cost £402k. (See Figure 9.9).

**Bellarena** AHB C669315

Main A2 trunk road; no change.

**Carrowreagh** AHB C654303

This LC should be closed; access would be possible from a point north of Bellarena station (C669315) if 300 metres of highway was constructed from Drumnahay to Minearny. Cost circa £307k including land. (See Figure 9.9).



**Figure 9.9**

*From Northeast to south west; Clooney, Duncrun East & West, Bellarena, and Carrowreagh LCs.*

*The LC to the right of Minearny is an Occupation LC and should also be closed.*

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**Myroe** AHB C637263

This crossing serves no purpose other than access to the sea defences; when construction traffic is maintaining or repairing the sea wall, a regular occurrence following winter storms, the railway operators generally man the AHB and work it locally. The AHB equipment should be removed and downgraded to Signaller released, User Worked Gates with telephones or, alternatively, permanently secured, manually operated gates. The AHB telephones should be retained and operation of the crossing should be by the user seeking agreement from the local signaller by telephone.





*Figure 9.10*

*Du Pont AHB LC looking towards Lough Foyle and jetty where tankers unload into pipelines crossing railway. As it is private property with minimal use, AHB should not be necessary and certainly should not be the railway company's responsibility.*

**Du Pont      AHB    C483223**

This level crossing is on a private factory estate owned by a well known chemical company. The road over the crossing allows access to a private jetty on Lough Foyle. The AHB equipment should be removed and replaced by permanently secured, manually operated gates. The AHB telephones should be retained and operation of the crossing should be by the user seeking agreement from the local signalman by telephone. The chemical company should meet all costs. They currently meet some costs of the existing AHB.

**Bleach Green - Antrim Line**

The Bleach Green to Antrim line is currently the subject of a rehabilitation project which will see the reopening of two stations, relaying of all permanent way, resignalling

and replacement of the following five level crossings. All of these level crossings are planned to be upgraded to AHBs.

**Kingsmoss East**      TMOG      J302856

**Kingsmoss West**      TMOG      J299857

Both should be permanently closed. Alternative railway crossing points are Kingsbog LC to the west and the A8 trunk road to the east, minimal inconvenience. Another option would be to build a new road alongside and to the north of the railway on the old formation connecting both minor lanes together and keeping Kingmoss East LC open.

**Kingsbog**      TMOG      J294859

This should be closed and bridged, cost circa £476k. One property north of road and south railway would suggest that it would be better to realign the road in an easterly direction across the new railway bridge. (See Figure 9.11).

**Kilmakee**      TMOAHB      J217848

Kilmakee LC is on the main A57 trunk road to Belfast International airport and this is an exceptionally fast and busy road. About 350 metres Northeast of the LC is a major roundabout and the road is on an uphill gradient to the LC. HGVs come off the roundabout and, due to their slow speed, cause impatience to other motorists who then overtake. This usually results in the overtaker being bang in the middle of the LC on the wrong side of the road. This is obviously of great concern and the current proposal<sup>177</sup> is to build a dual carriageway with 5.5 metre lane widths from the roundabout to a point 150 metres or so south of the LC, with lane widths that will prevent overtaking and allow the half barrier to fully close off the approach on both sides. A bridge would be possible and preferable but the land on either side of the road from the roundabout has been developed and costs would be very high. The acute skew of the railway also causes an increase in bridge costs. (See Figures 9.13 & 9.14).

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<sup>177</sup> Author involved in feasibility study undertaken for NIR.



**Figure 9.11**

*From east to west; Kingsmoss East LC, Kingsmoss West LC (both yellow roads) and Kingsbog LC (brown road).  
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**Drumbane** AHB J145617

This LC should be closed and replaced by a bridge, cost circa £476k.

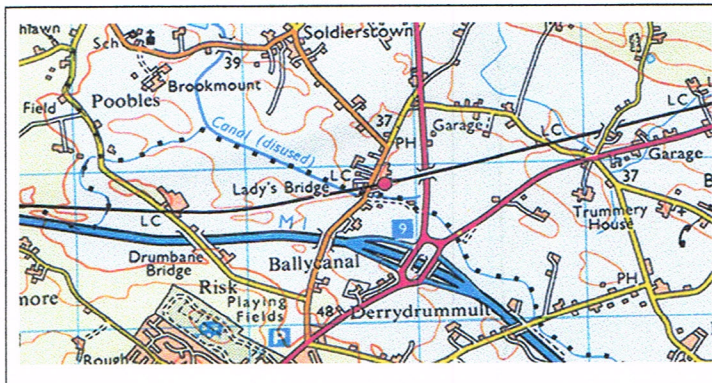
**Moira** AHB J157619

**Trummary** AHB J168621

Both should be closed; the main A26 trunk road is a suitable alternative for both with minimal local disruption.

**Figure 9.12**

*From east to west; Trummary LC, Moira LC (at station) and Drumbane LC.  
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*Figure 9.13*

*Kilmakee, currently TMOAHB LC, looking Northeast; note the acute skew of the railway; road traffic coming off the roundabout tends to overtake slower moving vehicles in the rush to get to the airport and arrives at the LC on the wrong side of the road.  
The road authority propose a dual carriageway with high central reservation, following double white lines, to prevent overtaking. (See figure 10.16)*

## **9.2 Conclusion**

Thirty two level crossings could be closed without much difficulty. A further three could be considered for closing by buying the landowners out and a further five be downgraded to Signaller released, User Worked Gates with telephones or by padlocked gates and telephone arrangements with the local signaller, given the very low traffic volumes. This equates to 65% of the current public level crossings.

### **9.2.1 Savings**

If one considers the NIR level crossings that can be closed easily it will be seen that 29 AHB level crossings can be permanently closed with a need to build 9 bridges, of which one is small and 8 are of the larger variety (see Chapter 7, page 7.14), and approximately 1.25km of new connecting highways. Over the 125 year design life of the bridge the outlay on the 9 bridges would be:



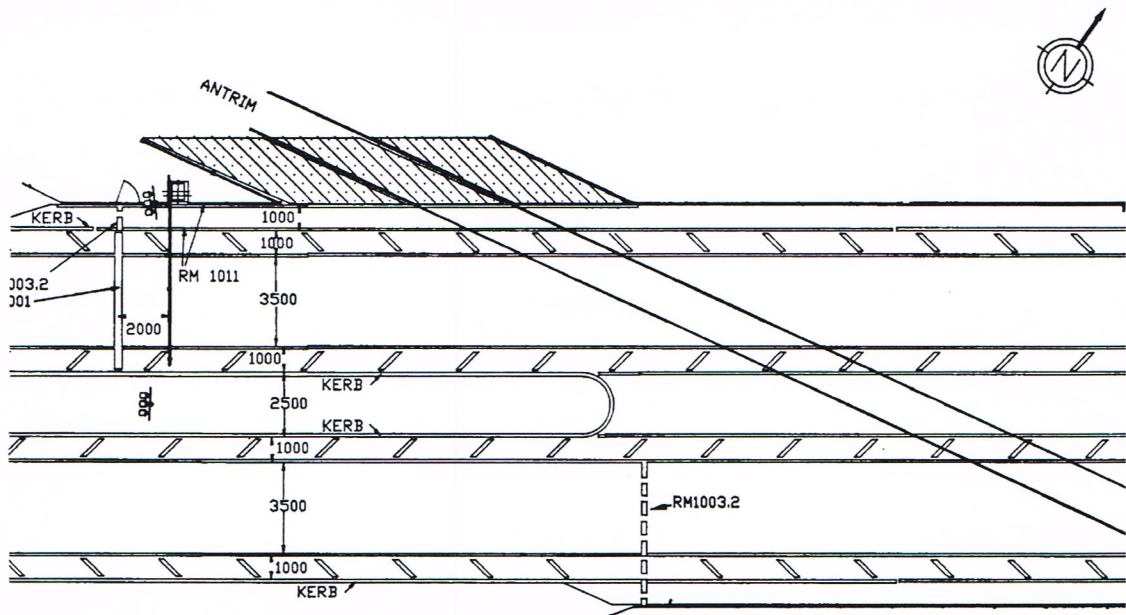


Figure 9.14

Part of the 1:200 feasibility drawing of the proposed 'new' Kilmakee AHB arrangements. The carriageway on each side will be 5.5 metres wide of which 2 metres will be white hatching lines; The central reservation will be a high kerbed arrangement with an obvious break for trains to pass through. Note the barrier arm immediately left of RM1011, (top rh corner) will close off whole lane.

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1.25km of new connecting highways. Over the 125 year design life of the bridge the outlay on the 9 bridges would be:

Capital costs:

1 @ £402k	£402k
8 @ £476k	£3808k
1.250km highway at £845 per metre	£1056k
Land for highway construction 3.09 acres at £3700	£11.4k

Maintenance costs (annual x 125years):

Highway: 1.250km @ £2789 per km	£437.5k
Bridges: 1 @ £2039, 8 @ £2583	£2837.5k

Total investment: £8.552M

The savings to the railway in closing the level crossings would be:

$$29 \times £7.92M = £229.6M$$

Undertaking an NPV test on these figures assuming construction of the bridges in the first year and closure of level crossings in the second year, the following result is obtained: **+£21.2M**

An Internal Rate of Return test gives a positive result of **175%**.

### **9.2.2 Note**

Northern Ireland Railways is used as a basecase as it is a rural system and has numerous level crossings but the above proposals do not consider the political situation in Northern Ireland or local costs which are usually cheaper than the UK mainland. The views expressed are the author's own and do not necessarily represent the opinions of Northern Ireland Railways or any other organisation connected with the operation of level crossings in Northern Ireland.