

Edinburgh Airport Rail Link



RODDINGLAW ROAD OPTIONS PAPER



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EDINBURGH AIRPORT RAIL LINK

Roddinglaw Road Options

Introduction

This paper records the key decisions made in proposing the local diversion of Roddinglaw Road west of Edinburgh. The current road alignment requires permanent stopping up of public traffic as the proposed Edinburgh Airport Rail Link (EARL) south line railway alignment severs the road in two locations.

Roddinglaw Road Severance

The south line railway requirements and derivation of the alignment are outlined within a paper titled 'South Line Railway Alignment'. This alignment severs Roddinglaw Road at two locations north of the existing railway overbridge adjacent to Roddinglaw Business Park.

The proposed railways are at differing levels to create the grade-separated junction. This, in combination with the existing railway, means that the current road alignment is constrained by three railways, all at differing levels.

Mitigation of Severance – Options

To mitigate the conflict of the railway with Roddinglaw Road several options have been considered.

1. Move proposed EARL Railway
2. Permanently close road with alternative on existing network
3. On-line road alignment
4. Easterly bypass of road
5. Westerly bypass of road
6. Westerly diversion to Freelands Road



1. Move EARL

The south line requirements and derivation of the alignment are outlined within a paper titled 'South Line Railway Alignment'. The railway is heavily constrained in this area to connect the main Edinburgh to Glasgow railway to Edinburgh Airport. Therefore, the railway is proposed to sever the Roddinglaw Road as outlined above.

2. Road Closure

This option would involve the permanent closure of Roddinglaw Road across the railways from North to South with no construction of an alternative.

The residents and business users of Roddinglaw housing and Business Park respectively and users of SASA HQ buildings would have a significant increase in journey time to gain access to the Northern side of the railway and the A8 corridor. Whilst some residents may benefit from reduced traffic, at consultation a number of residents raised the issue of access to bus services on the A8 corridor.

In addition, the current traffic usage would migrate to others parts of the road network.

This option is not proposed.

3. On-Line Option

An on-line option was initially considered. Normally this would be the preferred option. However, the differing heights and close proximity of the railways to each other as they cross Roddinglaw Road constrain this option considerably requiring the road to be either tunnelled under or elevated over the railways.

Both options would be of considerable cost, up to £15M, with residual impacts. A tunnelled section would restrict access to the business park and housing with the requirement for a vehicle turnback facility opposite the SASA HQ. An elevated road section over the railway would be a bridge structure on supporting columns. This structure would be situated between the housing and business park and considerably higher than the surrounding buildings. Again, a road turnback facility would be required



to gain access to the business park and housing. More importantly, the area would be visually blighted by an elevated road above an elevated railway.

This option has not been progressed due to cost and residual impacts.

4. Easterly Bypass

An Easterly bypass option would be similar to that proposed with an on-line solution with the road located behind the houses at Roddinglaw. Costs would be similar, however an elevated road sub-option would be much higher to go over the peak of the railway flyover line. In addition, the required landtake and severance would be high.

As with on-line solution, this option has not been progressed due to cost and residual impacts.

5. Westerly Bypass

A westerly bypass has been considered. Again, proposals would be similar to the on-line and easterly bypass. However, an elevated road option over the railways would have considerably less impact than on-line or easterly elevated options. The tunnel under the railway option would still be of significant cost (similar to an Eastern tunnel) in comparison to an elevated road and has therefore not been investigated further.

An elevated road section would deviate from the existing road alignment at the burn crossing south of Roddinglaw. The road would flank the southern periphery of the SASA HQ development and traverse over the three railways via three bridge structures and tie into the northern section of Roddinglaw Road south of the Golf Club. The design road speed is 50kph to Design Manual for Roads Bridges (DMRB) standard and CEC standards.

During consultation an alternative alignment was proposed by Prof. R Graves of Ashley Lodge.

These options have been developed and key technical, environmental, safety and commercial constraints are outlined later in this paper in table 1, and illustrated in the outline plan drawing in appendix A of this paper.



6. Westerly Diversion

A westerly diversion of Roddinglaw Road deviating the compliant 50kph alignment to the west, parallel to the existing railway and forming a new junction with Freelands Road. This option would utilise an existing crossing point under the railway adjacent to Ashley Lodge to gain access to the northern flank of the railway and the A8 corridor. No bridge structures over the railways would be required.

Assuming current traffic usage would migrate to this permanent diversion then traffic levels on Gogarstone Road would extend to the new junction between Freelands Road and Roddinglaw Road, the majority of which is realigned to standard. A Traffic Impact Assessment in combination with a Road Safety Audit would be required to identify mitigation measures for increased traffic levels on this short section of road, with particular attention to the alignment through underbridge 9, Freelands Road.

This option has been developed and key technical, environmental, safety and commercial constraints are outlined later in this paper in table 1, and illustrated in the outline plan drawing in appendix A of this paper.



TABLE 1 : RODDINGLAW ROAD OPTIONS

	Westerly Bypass	Westerly Bypass (Prof. R Graves)	Westerly Diversion
Description of route	Alignment starts at a point in Roddinglaw Road 400m south of the bridge carrying Roddinglaw Road over the E&G railway. Passing westwards, south of Roddinglaw cottages, then northwards and ties back into a point in Roddinglaw Road 250 metres south of the junction of that road with Gogarstone Road.	Alignment starts at a point in Hermiston Road 50m west of the existing junction of the said road and Roddinglaw road. Passing northwestwards along the M8 and then northwards and ties back into Roddinglaw road at the same point as Option 1.	The road commences at a point in Roddinglaw Road 20 metres south of the bridge carrying the stated road over the E&G railway. Passing northwestwards adjacent to that railway and terminating at a point in Freelands Road 115 metres south west of the bridge carrying the E&G railway over Freelands Road.
Land take (m²)	20,500 moderate landtake	30,000 largest permanent landtake	17,745 minimal landtake
Length	1100m short road	2300m longest road	1100m short road
Volume of Embankment fill (m³)	19,600 smallest amount of fill required	22,500 medium amount of fill required	30,000 most fill material required – most efficient re-use of EARL spoil material
Structures	2 bridges required over railways – one of which is required to be built next to and above operational railway. One of the bridges will be a large double structure spanning the existing railway and flyover line.	2 bridges required over railways – one of which is required to be built next to and above operational railway. One of the bridges will be a large double structure spanning the existing railway and flyover line.	No bridge works required
Construction Time	12 months with an earlier start in the programme than westerly diversion. Public access would be allowed over and through major construction site at Roddinglaw when road is commissioned	12 months with an earlier start in the programme than westerly diversion. Public access would be allowed over and through major construction site at Roddinglaw when road is commissioned	6 months. Remote form EARL works following commission.
Visual impact	Two bridge structures required to carry the alignment over both railways. Approximate height above existing ground level = 5 metres. The majority of receptors would see the elevated road alignment, particularly Knocktower.	Two bridge structures required to carry the alignment over both railways. Approximate height above existing ground level = 5 metres The majority of receptors would see the elevated road alignment, particularly Knocktower.	Visual impact of moderate and negative significance, due to the proposed route being close to existing ground level for it's entire length adjacent to an existing railway corridor*. Minimal receptors affected.
Noise and Vibration	Limited impact. Reduced train service on existing E&G at Roddinglaw.	Limited impact. Reduced train service on existing E&G at Roddinglaw.	Reduced train service on existing E&G at Roddinglaw. Limited impact permanently. Construction noise would require mitigation within 115m of Ashley Lodge.
Trees and Ecology	Footprint crossing several field and land-use boundaries.	Larger footprint crossing several field and land-use boundaries.	Minimal crossing and severance of existing field boundaries. Badger re-location can be accommodated in the works. Approximately 10% of mature trees in wooded area adjacent to Ashley Lodge requires to be felled.
Land Severance	This option creates the highest areas of land severance as more field boundaries are severed and smaller land parcels are left.	This option creates moderate areas of land severance due to the alignment following the M8 embankment	This option creates few issues of land severance due to the alignment following the E&G railway embankment. Traverses John Muir & Son's land south of railway, alternative accesses are provided.
Safety Considerations	Compliant road geometry, structures and sighting splays. Removal of irregular road alignment over railway at Roddinglaw. SASA have raised safety and security concerns w.r.t the proximity of the road alignment to the greenhouses located on the southern boundary of the HQ development. Road Safety Audit (RSA) required.	Compliant road geometry, structures and sighting splays. Removal of irregular road alignment over railway at Roddinglaw. SASA have raised safety and security concerns w.r.t the proximity of the road alignment to the greenhouses located on the southern boundary of the HQ development. Two road junctions in close proximity at Hermiston Road. Possibility of	Compliant road geometry and sighting splays. Removal of irregular road alignment over railway at Roddinglaw. Traffic Impact Assessment and RSA required, with particular attention to constrained bridge adjacent to Ashley Lodge.

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	Westerly Bypass	Westerly Bypass (Prof. R Graves)	Westerly Diversion
		restricted junction approach sighting due to motorway bridge parapets would need to be assessed. RSA required.	
Impact on SASA	Severance of fields 3 & 4 Route traverses the north-eastern corner of HQ plot N-S cross railway access provided	Severance of fields 3, 4 & 7 Route traverses the western perimeter of HQ plot N-S cross railway access provided	No major impact if low specification accommodation crossing provided Route traverses the northern perimeter of field 4
Cost	£4.7M	£6.2M	£1.9M

*Roddinglaw road will be diverted along a new alignment across arable fields between the existing Edinburgh to Glasgow rail line and the M8. This new diversion will be constructed immediately to the south of Ashley Lodge resulting in the severance of fields between the Lodge and the M8 cutting. The sensitivity to change is considered to be Moderate and the magnitude of the change to be High. A change of the type proposed is therefore considered to be of moderate to substantial negative significance.

Ashley Lodge off Freeland Road is a residential receptor and as such is classified as being of high sensitivity to change. Current views to the north are screened by the Edinburgh - Glasgow rail line which crosses the area on an embankment. To the south views are look across fields to the M8. Views are direct and partially screened by tree planting adjacent the lodge. The change in views southwards towards the proposed Roddinglaw Road diversion will be immediate and close. The loss of a number of mature trees will also be visible. Hedgerow and hedgerow tree planting along both sides the new road are proposed, as is a small woodland copse to be planted between the road diversion and the Lodge. Views towards this change will therefore in time be completely screened however open views southwards will be lost. The magnitude of this change is considered to be Moderate and the significance of this change to be moderate negative.



Summary

Table 1 illustrates the constraints in devising a road alignment while minimising the temporary and permanent impacts on the local area and maintaining a safe north to south access at a reasonable cost.

The Westerly Bypass options offer a new compliant road alignment over two new bridge structures replacing the irregular road alignment over the existing bridge at Roddinglaw. However, this is the key difference between the two Westerly Bypass options and the Westerly Diversion. Both the Bypass options require two bridge structures, one of which would be double span structure built adjacent to and over an operational railway. The bridges add a significant cost to road costings (more than double of the Diversion option costs).

In addition, the permanent land-take and indeed land severance is more acute with the Bypass options. The elevated construction of the road to bridge over the railway would be a dramatic visual impact on the area with several receptors affected by the proposal and more field boundaries cut as a consequence.

The Diversion proposal makes use of an existing railway crossing at Underbridge 9 adjacent to Ashley Lodge and does not require the construction of any bridging structures. The Diversion proposal is directly adjacent an existing transport corridor and would have a minimal intrusion on the local area with a small area of mature trees requiring permanent removal.

It is recognised that the proposed diversion of traffic along this diversion will increase traffic between Ashley Lodge and Gogarstone Road. The existing road alignment is irregular. However, the new road junction is to compliant standard and sighting splays are adequate. Road Safety Audits and Traffic Impact Assessments will be required. These will identify mitigation measures to be implemented as part of the diversion. Preliminary investigations have started and traffic counts recently taken in the area indicate that the road is not a particularly busy road.

On balance, and in order to minimise the impacts on the local area within a reasonable cost, the EARL Bill proposes the Westerly Diversion of Roddinglaw Road. The



Roddinglaw Diversion paper discusses the construction proposals associated with this option.