

Transport and Environment Committee

10:00am, Tuesday, 17 March 2015

A71 Dalmahoy Junction – Options Report

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| Item number | 8.1 |
| Report number | |
| Executive/routine | Executive |
| Wards | Pentland Hills |

Executive summary

A petition was considered by the Petitions Committee on 4 September 2014, regarding a request for the installation of traffic signals at the A71 Dalmahoy junction. This was to improve vehicular access to Ratho village and the Dalmahoy Hotel and Country Club and to reduce the risk to pedestrians crossing the A71 at this location.

The Transport and Environment Committee considered this petition on 28 October 2014, and asked for a follow up report on the possible options at this location together with their effectiveness and cost.

Links

| | |
|--------------------------|----------------------|
| Coalition pledges | |
| Council outcomes | CO21 |
| Single Outcome Agreement | SO4 |

A71 Dalmahoy Junction – Options Report

Recommendations

- 1.1 It is recommended that Transport and Environment Committee:
 - 1.1.1 notes the three options identified along with the relevant detail of the accompanying safety audit results;
 - 1.1.2 notes that the installation of traffic signals is the only practical option to improve road safety for both vehicles and pedestrians;
 - 1.1.3 notes that with the current shortfall in funding of approximately £76,000 this scheme can not currently proceed to construction; and
 - 1.1.4 agrees to undertake a detailed design for the signalisation of the junction with a more detailed cost estimate, including land acquisition and any required planning consents and to receive a report on these issues, along with details of how to find the additional required funding, in the first quarter of next year.

Background

- 2.1 The Petitions Committee, at its meeting on 4 September 2014, referred a petition entitled “Dalmahoy Traffic Lights Needed” to the Transport and Environment Committee. The petition requested the installation of traffic signals at the Dalmahoy Junction on the A71 in order to improve road safety particularly for pedestrians.
- 2.2 The Transport and Environment Committee on 28 October 2014 (Item 7.15b) considered the petition and report on the Dalmahoy Junction. It agreed to request a further report outlining a range of options and costs for improvements at the Dalmahoy Junction.
- 2.3 Three options have been investigated (see Appendices 1 and 2 for preliminary designs of each option):
 - Full signalisation of the junction;
 - Installation of a signal controlled pedestrian crossing; and
 - Installation of pedestrian refuge island.

- 2.4 All three options have been through a Stage 1 Road User Safety Audit (RUSA) process. This is an evaluation of a proposed road improvement scheme during the feasibility stage, to identify potential road safety problems for all road user groups and to suggest measures to eliminate or mitigate any concerns. It was carried out by an independent team of auditors. The results can be found in Appendix 3 and 4.

Main report

- 3.1 Three options have been investigated using the Stage 1 RUSA process and the outcome of each is summarised below. (A copy of the audit for each option can be found in the Appendices 3 and 4).

- 3.2 Option 1 – Full Signalisation of the Junction.

Cost - £430,000 approx.

Stage 1 audit comments (see Appendix 3):

The Audit Team noted that while the presence of traffic signals will highlight the junction to oncoming traffic, especially on the A71, the junction along with potential queuing will need to be highlighted to approaching drivers. This will be to minimise the risk of sudden braking, rear end shunt and potential loss of control type accidents.

Accident records show that poor driver attention to queuing traffic and turning movements has resulted in accidents at the junction and, as such, the Audit Team believe that potential similar inattention to the road layout and centrally located features will result in conflicts.

The audit report recommends that as the junction will be similar in nature to other traffic signal controlled junction located to the west, drivers will not be as likely to be taken unawares by a full signalised junction layout as other physical features such as a stand alone refuge island.

- 3.3 Option 2 – Signal Controlled Pedestrian Crossing. (Appendix 2)

Cost - £38,000 approx.

Stage 1 audit comments (see Appendix 4):

The Audit Team was concerned that such a facility would not be used to any great extent given the very low pedestrian volumes at the junction and the fact that the crossing would be some distance from the crossing desire line to the westbound bus stop.

This situation can then lead to regular drivers on the route disregarding the crossing and associated signals as they will generally pass through the signals on green. The use of the crossing by pedestrians may therefore be unexpected and lead to sudden braking with the potential for loss of control.

On a high speed rural road such as the A71, drivers who are unfamiliar with the road and junction layout may expect, from the warning signs, a full signalised staggered junction that allows and controls side road turning movements. This will also be compounded by the next junction to the west also being fully controlled by traffic signals. As such, these drivers may not expect turning movements to occur out of the side roads when they have been given a green signal to proceed on the A71. This could lead to a degree of confusion and potential sudden braking with the consequence of loss of control and rear end shunt type accidents.

The audit report recommends that while the desire to provide for pedestrians at the junction is recognised, the provision of an isolated traffic signal controlled crossing would appear to introduce a number of potential road safety issues that may, over time, outweigh any benefit provided by the crossing.

3.4 Option 3 – Pedestrian Refuge Island

Cost - £19,000 approx.

Stage 1 audit comments (see Appendix 3):

The Audit Team note the option of a proposed pedestrian refuge island on the A71 to the east of the Dalmahoy Junction.

This type of facility would be 'stand alone'; as such the Audit Team believe that the facility, regardless of being provided with the appropriate signs and markings, will be a feature that has a high potential to be struck by passing vehicles due to its 'isolated' nature within the road network and thus making it an unexpected feature on a high speed rural road.

Accident records show that poor driver attention to queuing traffic and turning movements has resulted in accidents at the junction and, as such, the Audit Team believe that potential similar inattention to the road layout and centrally located features will result in conflicts. This situation would be exacerbated in the hours of darkness.

The audit report recommends that a 'stand alone' centrally located refuge island crossing solution is not pursued.

3.5 Following the outcome of the Stage 1 audits, the introduction of traffic signals to the junction is the only practical option to improve road safety for both vehicles and pedestrians.

Measures of success

4.1 Success will be measured through a reduction in the collision rate, as measured through the comparison of before and after collision statistics.

- 4.2 A secondary measure of success will be an improvement in exiting and entering the side roads, should option 1 be taken forward.

Financial impact

- 5.1 Options 2 and 3 have the costs stated in the main report; these costs could be made available from the road safety capital budget.
- 5.2 To implement Option 1, a fully signalised junction, would cost approximately £430,000 including land acquisition.
- 5.3 So far £200,075 of funding has been identified from Transport capital budgets. This includes £135,075 from the Road Safety, £25,000 from the Access to Bus Stops capital budgets plus a £40,000 Section 75 contribution. Potential contributions of up to £60,000 from the Cycling, Walking and Safer Streets and Roads and Footways capital budgets are also being considered. A further £83,916 is potentially available from the South West Neighbourhood roads capital budgets (Neighbourhood Environment Programme and Ward Allocation) but this is dependent on securing the support of the local elected members and Neighbourhood Partnership. A contribution is also being sought from the Marriott Hotel and they have indicated that they may be able to fund £10,000 although this is yet to be confirmed. This leaves a shortfall of £76,009 which would have to be found from other sources.
- 5.4 Given this current shortfall it is recommended that the scheme be progressed to a detailed design and to acquire the land required for construction. This would cost around 10% of the estimated cost at around £43,000 and could be met by the Road Safety Capital Budget. The land acquisition could take up to eighteen months to complete which will allow the scheme to proceed in the interim.
- 5.5 A follow up report detailing the final costs and a timetable for the land purchase and scheme construction will be submitted to a future meeting of this Committee.

Risk, policy, compliance and governance impact

- 6.1 There are no significant governance, health and safety, compliance or regulatory implications expected, as a result of approving the recommendations of this report.

Equalities impact

- 7.1 An Equalities and Rights Impact Assessment has been prepared and is available as background reference. There are no direct negative equalities or human rights impacts anticipated and the proposals are expected to enhance accessibility to the Dalmahoy Hotel complex and to Ratho village, for both vehicular and pedestrian traffic.

Sustainability impact

8.1 The impacts of this report have been considered in relation to the three elements of the Climate Change (Scotland) Act 2009 Public Bodies Duties and the outcomes are summarised as follows:

8.1.1 Potential for positive impact on the environment by reducing speeds, reducing the potential for collisions and removing community severance.

8.1.2 The proposals in this report will help achieve a sustainable Edinburgh as it will enhance access to public transport, aid social cohesion and inclusion as well as equality of opportunity.

Consultation and engagement

9.1 Consultation will be carried out on the design and construction of any proposed scheme. This will include the following stakeholders:

- Residents and businesses which front on to the location;
- Neighbourhood Partnerships;
- Community Councils;
- Local elected members;
- Council Roads Network Managers;
- Bus operators; and
- Emergency services.

Background reading/external references

Transport and Environment Committee Report – Item 7.15b, Dalmahoy Junction – Response to Petition, 28 October 2014.

John Bury

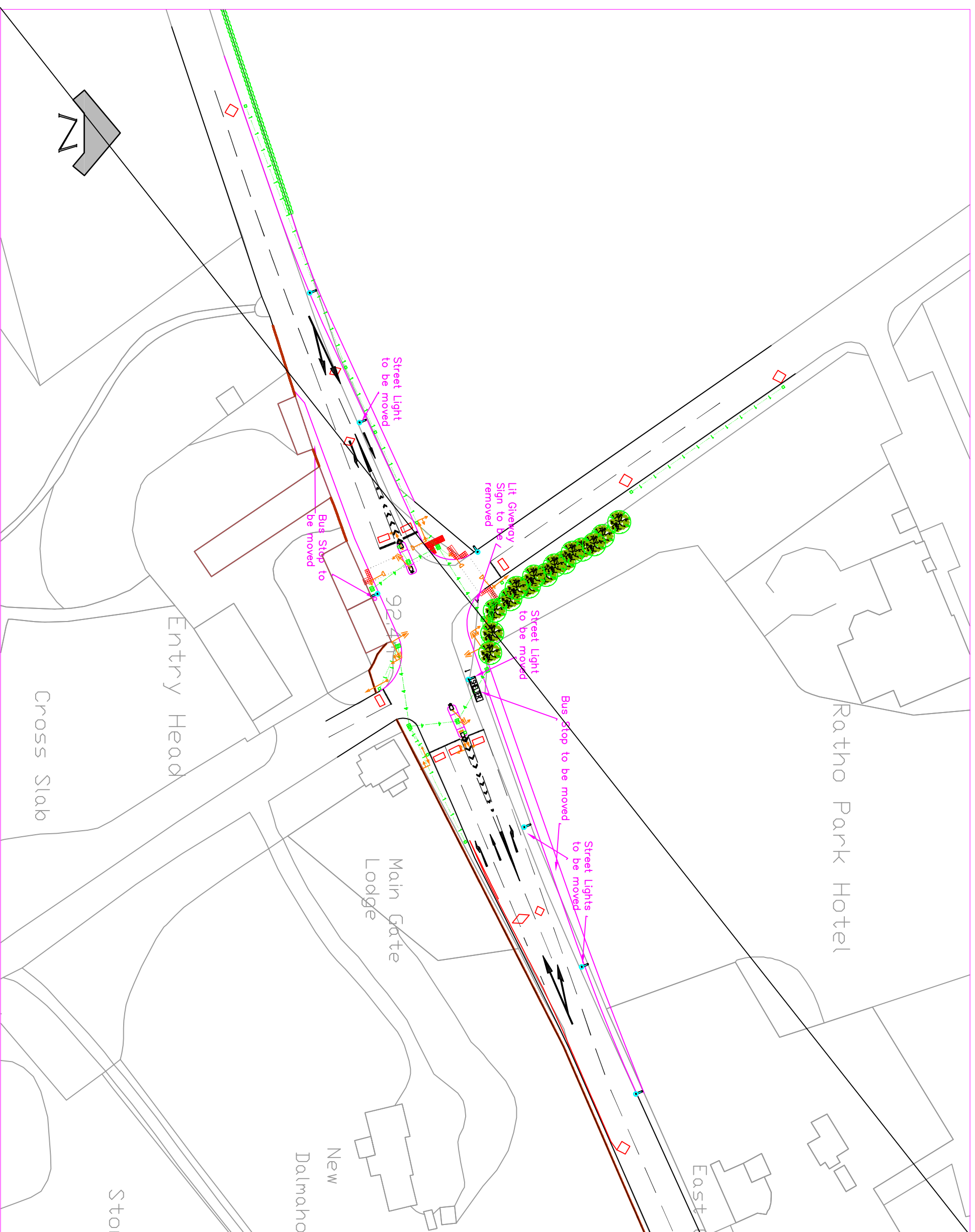
Acting Director, Services for Communities

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Links

| | |
|---------------------------------|--|
| Coalition pledges | Strengthening and supporting our communities and keeping them safe. |
| Council outcomes | CO21: Safe – Residents, visitors and businesses feel that Edinburgh is a safe city. |
| Single Outcome Agreement | SO4: Edinburgh’s communities are safer and have improved physical and social fabric. |
| Appendices | Appendix 1 – Preliminary design of Traffic Signals Appendix 2 - Preliminary design of controlled crossing and pedestrian refuge island Appendix 3 – Traffic Signals safety audit Appendix4 –. Controlled crossing and pedestrian refuge island safety audit |



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**VEHICLE ACTIVATED SIGNS
&
PEDESTRIAN CROSSING OPTIONS
A71 DALMAHOY
EDINBURGH**

INDEPENDENT STAGE 1 ROAD SAFETY AUDIT

PRELIMINARY / OPTION DESIGN

PREPARED FOR

THE CITY OF EDINBURGH COUNCIL

A71 DALMAHOY

Report prepared by:-

**Stewart Paton Associates Ltd.
Consulting Engineers
69 Barnton Park Avenue
Edinburgh
EH4 6HD**

**JOB No. 4301/1/A71Dal-Final-001
Date: January 2015**


**VEHICLE ACTIVATED SIGNS
&
PEDESTRIAN CROSSING OPTIONS
A71 DALMAHOY
EDINBURGH**

INDEPENDENT STAGE 1 ROAD SAFETY AUDIT

PRELIMINARY / OPTION DESIGN

A71 DALMAHOY

JOB NO: 4301/1/A71 Dal-Final-001

| | STATUS | PREPARED BY | DATE | APPROVED BY | DATE |
|---------|--------|--------------------------|--------------|---|-----------------------|
| Stage 2 | Final | K P McMahon M Robison | January 2015 |  | 28 January 2015 |

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1.0 INTRODUCTION

- 1.1 The report has been prepared for the City of Edinburgh Council as a Stage 1 Road Safety Audit of the proposed works relating to the provision of Vehicle Activated Signs (VAS) and pedestrian crossing options on the A71 at Dalmahoy.
- 1.2 The audit was carried out during January 2015. A site inspection was undertaken on 16 January 2015 when photographs and detailed notes of the path network were taken. During the site inspection the weather was overcast and the road surface was wet from earlier rainfall. Traffic volumes were moderate and some pedestrian activity was observed.
- 1.3 The independent audit was carried out by Kevin McMahon, Managing Director of Stewart Paton Associates Ltd., Consulting Engineers and Forensic Investigation Specialists assisted by Murray Robison, Director of Stewart Paton Associates Ltd.
- 1.4 The following documents were provided and form the basis on which this report has been prepared:-

The Audit Brief

The scheme drawings reviewed during the course of this audit were:-

RTD/636219/2/03 – Optioneering
AIP/2010/34/sign layout – VAS Staggered Junction Ahead

- 1.5 The audit was carried out generally as described in DMRB:HD19/03 and took into account the specific requirements of the contract as appropriate and the Audit Brief.
- 1.6 In this Stage 1 assessment, compliance with design criteria and the Employer's Requirements has been considered. Aspects that may reflect on safety issues have been identified. The proposals have been audited to allow consideration to be given to the potential safety implications inherent in the scheme and to identify proposals to address the safety issues identified.
- 1.7 For the purposes of this audit, it is assumed that all Orders required to construct the scheme have been published and approved.
- 1.8 The scheme under consideration involves the options for possible pedestrian crossing facilities on the A71 to the east of its junction with Dalmahoy Road and the access for the Dalmahoy Hotel and Country Club.

The A71 at this point is a single carriageway road, linking Edinburgh to Livingston, which is subject to a 50mph speed limit. A footway is provided on the south side of the road and the junction has been lit as part of a road safety scheme some years ago.

- 1.9 The scope of the works reviewed during the course of this audit comprise –

Consideration of the options for a pedestrian crossing facility and a review of the proposals for a VAS for the staggered junction.

Note:

Any reference to a Chapter is a reference to a Chapter of the Traffic Signs Manual, reference to the Regulations is a reference to the Traffic Signs Regulations and General Directions 2002 and any reference to a Diagram (Diag) is a reference to a sign Diagram number in those Regulations. References to standards are those found in the Design Manual for Roads and Bridges.

2.0 ITEMS ARISING FROM THIS STAGE 1 AUDIT

A2 LOCAL ALIGNMENT

A2.2 New/Existing Road Interface

A2.2.1 Comment

Location: A71 Dalmahoy Junction
Summary Proposed Pedestrian Crossing with Refuge Island

The Audit Team note the option of a proposed pedestrian refuge island on the A71 to the east of the Dalmahoy Junction.

The Audit Team note that this type of facility would be ‘stand alone’ and the only centrally located physical feature being some 2 miles from the dual carriageway at Hermiston to the east and some 1¼ miles to the traffic signal controlled junction at Linburn Road to the west.

As such the Audit Team believe that the facility, regardless of being provided with the appropriate signs and markings, will be a feature that has a high potential to be struck by passing vehicles due to its ‘isolated’ nature within the road network and thus making it an unexpected feature on a high speed rural road.

Accident records show that poor driver attention to queuing traffic and turning movements has resulted in accidents at the junction and, as such, the Audit Team believe that potential similar inattention to the road layout and centrally located features will result in conflicts. This situation would be exacerbated in the hours of darkness.

Recommendation

The Audit Team recommends that a ‘stand alone’ centrally located refuge island crossing solution is not pursued.

Therefore if any of the two options were to be pursued then it should be the signal controlled solution. However comments relating to this proposal are provided below.

A2.2.2 Comment

Location: A71 Dalmahoy Junction
Summary Proposed Traffic Signal Controlled Crossing

The Audit Team note the option of a proposed traffic signal controlled crossing on the A71 to the east of the Dalmahoy Junction.

The Audit Team is concerned that such a facility would not be used to any great extent given the very low pedestrian volumes at the junction and the fact that the crossing would be some distance from the crossing desire line to the westbound bus stop.

This situation can then lead to regular drivers on the route disregarding the crossing and associated signals as they will generally pass through the signals on green. The use of the crossing by pedestrians may therefore be unexpected and lead to sudden braking with the potential for loss of control.

It is also the case that in combination with the proposals for VAS relating to warning drivers of the Dalmahoy junction, these signs could detract from the traffic signal controlled crossing.

As there would also be a need for advance warning signs of the traffic signals given the high speed nature of the road, there is also the issue of multiple messages and sign clutter raising the potential for driver confusion.

The confusion being that drivers travelling on the A71 who are unfamiliar with the road and junction layout may expect, from the warning signs, a full signalised staggered junction that allows and controls side road turning movements. As such, these drivers may not expect turning movements to occur out of the side roads when they have been given a green signal to proceed on the A71. Even vehicles proceeding to the give way markings could be misinterpreted as a vehicle entering the junction against a red traffic signal on the side road. This could lead to a degree of confusion and potential sudden braking with the consequence of loss of control and 'rear end shunt' type accidents.

Recommendation

While the Audit Team recognises the desire to provide for pedestrians at the junction the provision of an isolated traffic signal controlled crossing would appear to introduce a number of potential road safety issues that may, over time, outweigh any benefit provided by the crossing.

The Audit Team would recommend that the above issues are carefully considered by the council before progressing with any further design.

4 NON MOTORISED USER PROVISION

A4.1. Pedestrians

A4.1.1 Comment

Location: A71 Dalmahoy Junction
Summary Bus Stop / Pedestrian desire line

It is noted that at the westbound bus stop located directly opposite Dalmahoy Road, to the north, there is only a narrow section of footway/hardstanding.

The Audit Team would anticipate that, at times where traffic volumes are light, any pedestrians heading to and from this bus stop location from Dalmahoy Road would simply cross the A71 at the junction.

When traffic volumes are higher then some pedestrians may use a proposed crossing facility to the east.

However the existing situation is that there are no connecting footway or dropped kerb crossing facilities from the bus stop to the Dalmahoy Hotel and Country Club access.

The proposals only include for a new footway on the east side of the Dalmahoy Hotel and Country Club access and no mention is made of relocating the westbound bus stop.

Recommendation

If a crossing is to be provided to the east of the junction then footway improvements will also be needed to the west side of the Dalmahoy Hotel and Country Club.

The Audit Team assume that little can be done in the area of the hardstanding but there does appear to be opportunities to improve footway facilities at the presently gravel covered area of the bellmouth.

A4.1.2 Comment

Location: A71 Dalmahoy Junction (North footway east of junction)
Summary: Bus Stop and footway width

It is noted that the north side footway to the east of the junction is relatively narrow at 1.4m and that the back of footway is poorly defined along with the width being effectively narrowed by hedges and other boundary foliage / vegetation.

If the existing bus shelter was to be relocated eastwards then the type of shelter would need to be altered to a cantilever style to maximise footway width. Even then ideally some form of set back should be provided otherwise any pedestrians needing to pass the shelter could end up having to walk on the carriageway. Anyone heading east would then be doing so with their back to traffic.

Recommendation

If a crossing is to be provided to the east of the junction and the existing bus stop location relocated then the type of shelter should be altered and ideally set back so as to at least maintain the existing but limited footway width.

If there was any possibility of improving the footway width in this area then this should be investigated.

A5 ROAD SIGNS, CARRIAGEWAY MARKINGS AND LIGHTING

A5.1 ADS and Local Traffic Signs

A5.1.1 Comment

Location: A71 Dalmahoy
Summary: VAS and Warning Signs, Traffic Signals – Interaction with each other and foliage

It is noted that the locations for the proposed signs all appear to be ones where the signs should not be obstructed by the existing verge side foliage, nor do they appear to be in locations where one sign may block the sightline to another sign. However care is required when assessing final locations of site.

An exception to the above is the current location of the existing chevron directions signs for the Canal Centre and St Mary's Church appear to be in locations that will block sightlines to the north side signals of any proposed traffic signal controlled crossing.

Recommendation

The Audit Team would recommend that the final location for all signs be carefully considered on site taking into account all existing features.

The locations and design of the signs for the Canal Centre and Church should be reviewed at detailed design stage to ensure any traffic signals are unobstructed from the appropriate stopping sight distance.

**SIGNAL CONTROLLED JUNCTION
A71 DALMAHOY
EDINBURGH**

INDEPENDENT STAGE 1 ROAD SAFETY AUDIT

DRAFT DESIGN

PREPARED FOR

THE CITY OF EDINBURGH COUNCIL

**A71 DALMAHOY
(Signal controlled junction)**

Report prepared by:-

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**JOB No. 4301/1/A71Dal-Sig Final-001
Date: February 2015**


**SIGNAL CONTROLLED JUNCTION
A71 DALMAHOY
EDINBURGH**

INDEPENDENT STAGE 1 ROAD SAFETY AUDIT

DRAFT DESIGN

A71 DALMAHOY

JOB NO: 4301/1/A71 Dal-Sig-Final-001

| | STATUS | PREPARED BY | DATE | APPROVED BY | DATE |
|---------|--------|--------------------------|---------------|---|------------------------|
| Stage 2 | Final | K P McMahon M Robison | February 2015 |  | 17 February 2015 |

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1.0 INTRODUCTION

- 1.1 The report has been prepared for the City of Edinburgh Council as a Stage 1 Road Safety Audit of the proposed traffic signal controlled junction on the A71 at Dalmahoy.
- 1.2 The audit was carried out during January and February 2015. A site inspection was undertaken on 16 January 2015 when photographs and detailed notes of the path network were taken. During the site inspection the weather was overcast and the road surface was wet from earlier rainfall. Traffic volumes were moderate and some pedestrian activity was observed.
- 1.3 The independent audit was carried out by Kevin McMahon, Managing Director of Stewart Paton Associates Ltd., Consulting Engineers and Forensic Investigation Specialists assisted by Murray Robison, Director of Stewart Paton Associates Ltd.
- 1.4 The following documents were provided and form the basis on which this report has been prepared:-

The Audit Brief

The scheme drawings reviewed during the course of this audit were:-

Appendix 1 – Draft Traffic Signal Layout

- 1.5 The audit was carried out generally as described in DMRB:HD19/03 and took into account the specific requirements of the contract as appropriate and the Audit Brief.
- 1.6 In this Stage 1 assessment, compliance with design criteria and the Employer's Requirements has been considered. Aspects that may reflect on safety issues have been identified. The proposals have been audited to allow consideration to be given to the potential safety implications inherent in the scheme and to identify proposals to address the safety issues identified.
- 1.7 For the purposes of this audit, it is assumed that all Orders required to construct the scheme have been published and approved.
- 1.8 The scheme under consideration involves proposals for a traffic signal controlled junction on the A71 at its junction with Dalmahoy Road and the access for the Dalmahoy Hotel and Country Club.

The A71 at this point is a single carriageway road, linking Edinburgh to Livingston, which is subject to a 50mph speed limit. A footway is provided on the south side of the road and the junction has been lit as part of a road safety scheme some years ago.

- 1.9 The scope of the works reviewed during the course of this audit comprise –
Consideration of the design of a traffic signal controlled junction.

Note:

Any reference to a Chapter is a reference to a Chapter of the Traffic Signs Manual, reference to the Regulations is a reference to the Traffic Signs Regulations and General Directions 2002 and any reference to a Diagram (Diag) is a reference to a sign Diagram number in those Regulations. References to standards are those found in the Design Manual for Roads and Bridges.

2.0 ITEMS ARISING FROM THIS STAGE 1 AUDIT

A1 GENERAL

A1.1 Departures from Standards

A1.1.1 Comment

Location: A71 Dalmahoy Junction

Summary: Inter-visibility

It is noted that the inter-visibility between stop lines and crossing areas is sub-standard due to the buildings and tree/hedge lined boundaries at the existing junction.

Ideally obstructions should be removed to provide the required inter-visibility as per TD50/04: The Geometric Layout of Signal Controlled Junctions and Signalised Roundabouts

Recommendation

Ideally tree lines and buildings should be outwith the inter-visibility zone, however it is appreciated that in existing layouts this is not always possible, especially if there are third party land ownership issues.

At this time the Audit Team cannot recommend any mitigation measures other than those relating to warning signs as discussed in other sections of the report.

It is therefore recommended that the council, as the junction design progresses, records the inter-visibility issue as a Departure from Standard.

A1.8 Access

A1.8.1 Comment

Location: A71 Dalmahoy Junction

Summary: Swept Paths

It is noted that the stop line for the exit from the Dalmahoy Hotel and Country Club is only a short distance from the edge of the A71 carriageway. While no plans have been provided at this stage the Audit Team are concerned that swept path analysis may show that larger vehicles making the left turn in from the A71 may have difficulty completing such a manoeuvre if an exciting vehicle is stationary at the stop line.

This could lead to such vehicles becoming stationary on the A71 with the effect of blocking traffic lanes and possibly needing to make unexpected reversing and other manoeuvres to negotiate the

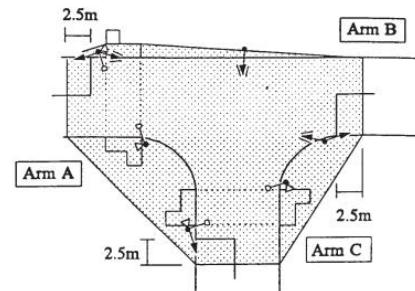


Figure 2/3: Junction Intervisibility Zone (with crossings)

junction that could confuse other drivers on the A71 and lead others to take unexpected paths through the junction.

Recommendation

It is recommended that if not already undertaken swept path analysis be carried out on all turning movements for the largest types of vehicles that may require to use the junction.

At this stage the Audit Team feel It may be necessary to move the stop line on the Dalmahoy Hotel and Country Club further south. This may then have an effect on traffic signal timings given the need for a slightly longer inter-green/clearance time.

A1.12 Basic Design Principles

A1.12.1 Comment

Location: A71 Dalmahoy Junction
Summary: Offset route for A71 eastbound traffic

It is noted that on the A71 eastbound approach to the junction the lane layout will require Edinburgh bound traffic to deviate to the left due to introduction of the right turn lane for the Dalmahoy Hotel and Country Club and the associated island for the central traffic signals.

This deviation is somewhat unusual being the direct line of sight for eastbound traffic would suggest to drivers that they should remain in Lane 2.

Recommendation

The Audit Team would recommend that the detailed design considers if there is a need, even on a temporary basis, for some form of lane designation signing to alert Edinburgh bound drivers of the need to maintain a position in Lane 1.

It is also noted that a similar traffic signal layout has been operational for a number of years on the A703/Seafield Road/Roslin Institute junction, which is also a rural high speed road. Analysis of the web site www.crashmap.co.uk indicates there has been no recorded injury accidents since this junction came into operation.

If not already undertaken, it may be that the council would wish to contact colleagues in Midlothian Council to gain any information and experience at this similar site with a traffic signal controlled junction.

A2 LOCAL ALIGNMENT

A2.2 New/Existing Road Interface

A2.2.1 Comment

Location: A71 Dalmahoy Junction

Summary Proposed Traffic Signal Controlled Junction

The Audit Team note that this type of facility including traffic islands would be ‘stand alone’ and the only centrally located physical feature being some 2 miles from the dual carriageway at Hermiston to the east and some 1¼ miles to the traffic signal controlled junction at Linburn Road to the west.

While the presence of traffic signals will highlight the junction to oncoming traffic, especially on the A71, the junction along with potential queuing will need to be highlighted to approaching drivers so as to minimise the risk of sudden braking, rear end shunt and potential loss of control type accidents.

Accident records show that poor driver attention to queuing traffic and turning movements has resulted in accidents at the junction and, as such, the Audit Team believe that potential similar inattention to the road layout and centrally located features will result in conflicts.

Recommendation

The Audit Team notes that, as the junction will be in similar in nature to other traffic signal controlled junction located to the west, drivers will not be as likely to be taken unawares by a full signalised junction layout as other physical features such as lone refuge island.

However it is recommended that temporary signs to Diag 7014 with the legend "NEW TRAFFIC SIGNALS" be provided for the first three months of operation.

In addition to this it is recommended that warning signs to Diag 543 “Traffic Signals Ahead” be provided on A71 approaches to the junction.

It is further recommended that even though the main approaches to the junction are relatively straight and level the operation of the junction needs to be modelled and monitored so as to establish whether or not there would be benefit in providing warning signs to Diag 584 “Traffic Queues Likely on Road Ahead” on the A71 and Dalmahoy Road to ensure drivers are aware of the potential need to slow down some distance from the traffic signals.

A2.2.2 Comment

Location: A71 Dalmahoy Junction
Summary Visibility to traffic signals

The Audit Team note that while the traffic signals on the central islands on the A71 will be visible to approaching drivers the primary signals on the nearside of the carriageway will be offset from the current driver’s sightline on approach to the junction.

Care is required that these signals can be seen by approaching drivers, especially if larger right turning vehicles are sitting at the stop line and potentially limiting the visibility to the signals on the central islands.

It is also the case that the nearside primary signal on Dalmahoy Road will be in an area where there is extensive tree growth and as such branches will obscure the traffic signals.

Recommendation

The Audit Team recommends that where required trimming back and then continual maintenance be carried out on trees and hedges running alongside the adopted road network to ensure traffic signal heads are visible from the appropriate stopping sight distance.

4 NON MOTORISED USER PROVISION

A4.1. Pedestrians

A4.1.1 Comment

Location: A71 Dalmahoy Junction (North footway east of junction)

Summary Bus Stop and footway width

It is noted that the north side footway to the east of the junction is relatively narrow at 1.4m and that the back of footway is poorly defined along with the width being effectively narrowed by hedges and other boundary foliage / vegetation.

If the existing bus shelter was to be relocated eastwards then the type of shelter would need to be altered to a cantilever style to maximise footway width. Even then ideally some form of setback should be provided otherwise any pedestrians needing to pass the shelter could end up having to walk on the carriageway. Anyone heading east would then be doing so with their back to traffic.

Recommendation

On relocating the bus stop the type of shelter should be altered and ideally set back so as to at least maintain the existing but limited footway width.

If there was any possibility of improving the footway width in this area then this should be investigated.

A4.1.2 Comment

Location: A71 Dalmahoy Junction

Summary Pedestrians crossing on east arm of the junction

Given the aforementioned relocation of the eastbound bus stop it may be the case that people using this stop will be heading to and from the Dalmahoy Hotel and Country Club.

No details have been given at this stage with regard to the traffic signal phasing.

As people making the above movement would have to make two road crossings to reach their destination it may be that some pedestrians will simply make the direct and uncontrolled crossing to and from the eastbound bus stop.

Recommendation

If the signals are to operate on an 'all red traffic/green man phases, then given that there is space available the Audit Team recommends that the detailed design considers the provision of a pedestrian crossing on the east arm or offers justification for not providing such a facility.

A5 ROAD SIGNS, CARRIAGEWAY MARKINGS AND LIGHTING

A5.1 ADS and Local Traffic Signs

A5.1.1 Comment

Location: A71 Dalmahoy

Summary: Warning Signs, Traffic Signals – Interaction with each other and foliage

It is noted that there are existing signs on the A71 for the Dalmahoy Road junction, these include warning signs and some directions signs.

As mentioned previously in this report there is potentially the need for new signs relating to the presence of the traffic signal controlled junction.

Care is required that any new signs do not just result in a proliferation of signs where important driver information is lost within the 'sign clutter'

Recommendation

The Audit Team would recommend that a complete review of the signing strategy for the junction be undertaken during the detailed design stage with the aim that all signs be carefully considered on site taking into account all existing features.

The locations and design of the signs for the Canal Centre and Church should be reviewed at detailed design stage to ensure any traffic signals are unobstructed from the appropriate stopping sight distance.

