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A96 DUALLING HARDMUIR TO FOCHABERS

STAGE 2 SCHEME OPTIONS ASSESSMENT
VALUE FOR MONEY WORKSHOP
(CVRL Ref: 6189)

REPORT

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Mott MacDonald
Sweco

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1 INTRODUCTION

1 INTRODUCTION

A one-day Stage 2 Value for Money (VfM) Workshop for the A96 Dualling: Hardmuir to Fochabers scheme was held on 20 September 2018 with representatives from Transport Scotland (TS) and its' consultants, Mott MacDonald Sweco (MMS).

Transport Scotland required an independent facilitator to manage the VfM study. Capital Value & Risk Limited (CVRL) was commissioned to undertake the study which incorporated the workshop.

The workshop was preceded by a briefing meeting on 23 August 2018 with TS, MMS and CVRL, to discuss content and structure to achieve the objectives

Glyn Harrison facilitated the workshop with support from Amanda Harrison. The workshop was held at the offices of Transport Scotland, Buchanan House, Glasgow.

1.1 WORKSHOP OBJECTIVES

As part of developing the scheme and in accordance with TS VfM procedures, the workshop was convened to undertake a value for money review of the proposed scheme options.

The purpose of the workshop was to reach consensus on the emerging preferred option for the scheme. To facilitate this, the workshop participants were asked to review Option Assessment Tables for each of the three route sections and challenge the provisional assessment scoring assigned by the project team.

Participants were asked to consider the value index for each section option and the Present Value of Costs (PVB) Net Present Value (NPV) and the Benefit Cost Ratio (BCR) for the end to end options.

A quantified risk assessment had been previously prepared by MMS and included in the cost estimates for each option. Any key risks were highlighted by MMS during the workshop and the associated risk register was available for review.

This is the report from the workshop providing background information on the scheme, workshop outputs, agenda, attendees and other supporting information used on the day.

2 BACKGROUND

2 BACKGROUND

2.1 SCHEME BACKGROUND

On 6 December 2011, the then Cabinet Secretary for Infrastructure and Capital Investment launched the Infrastructure Investment Plan (IIP) which provides an overview of the Scottish Government's plans for infrastructure investment over the coming decades. Contained within the document is a commitment to complete the dualling of the A96 between Inverness and Aberdeen by 2030.

The A96 between Inverness and Aberdeen is approximately 99 miles (160km) long and consists mostly of single carriageway and climbing lanes in places with sections of dual carriageway at each end.

Transport Scotland has completed the first phase of design (Design Manual for Roads and Bridges (DMRB) Stage 1 assessment) for the dualling of the A96 east of Nairn to Aberdeen and are progressing the next stage of the design (DMRB Stage 2 assessment) as three geographic sections in addition to the Inverness to Nairn (including Nairn Bypass) section which is at a more advanced stage of development. The three sections are based on a western, central and eastern section (see Figure below).



2 BACKGROUND

The A96 Dualling Hardmuir to Fochabers scheme (western section) will create a new dual carriageway from the tie-in of the A96 Dualling Inverness to Nairn (including Nairn Bypass) scheme at Hardmuir, to the east of Fochabers – a distance of approximately 46km (28 miles).

In June 2016 Mott MacDonald Sweco (MMS) was appointed to carry out route options assessment (DMRB Stage 2 assessment) and detailed design work for the scheme. MMS have built on the previous DMRB Stage 1 design work that has been completed for the A96 Dualling east of Nairn to Aberdeen.

In June 2017, and then in February and March 2018, public engagement events were held to seek feedback from members of the public on the options being developed.

The route options have been further developed, following the February and March 2018 public exhibitions, to address feedback received from stakeholders and members of the public, as well as for engineering, environment, traffic and economic reasons.

A further Design Update was issued in August 2018 of the shortlisted options that were to be assessed.

The DMRB Stage 2 Scheme Assessment is now nearing completion.

2.2 SCHEME OBJECTIVES

The scheme objectives are:

- To improve the operation of the A96 and inter-urban connectivity through:
 - Reduced journey times
 - Improved journey time reliability
 - Increased overtaking opportunities
 - Improved efficiency of freight movements along the transport corridor
 - Reduced conflicts between local traffic and other traffic in urban areas and strategic journeys.

- To improve safety for motorised and Non-Motorised Users through:
 - Reduced accident rates and severity
 - Reduced driver stress
 - Reduced Non-Motorised User conflicts with strategic traffic in urban areas.

2 BACKGROUND

- To provide opportunities to grow the regional economies on the corridor through:
 - Improved access to the wider strategic transport network
 - Enhanced access to jobs and services.
- To facilitate active travel in the corridor.
- To facilitate integration with public transport facilities.
- To avoid significant environmental impacts and, where this is not possible, to minimise the environmental effect on:
 - The communities and people in the corridor
 - Natural and cultural heritage assets.

Route option assessment criteria have been developed which are based on STAG criteria and aligned to these scheme objectives.

2.3 ROUTE OPTIONS

The existing A96 within the study area is generally a single carriageway, approximately 46km long, with four short sections of WS2+1 and climbing lanes. The rural sections of the route are generally of a reasonable standard in terms of cross-section and horizontal and vertical alignment. However, the existing route has frequent junctions and accesses.

Route options have been developed to provide a category 7A dual carriageway with grade separated junctions. At the west end of the scheme, the route options tie-in to the proposed Inverness to Nairn (including Nairn Bypass) Scheme at Hardmuir.

At the east end of the scheme, the route options tie-in to the existing single carriageway east of Fochabers with a dual to single carriageway transition in such a way that a future dualling scheme can be developed eastwards to Keith.

For assessment purposes the scheme is divided into three distinct sections: Hardmuir to Hillhead; Hillhead to Lhanbryde; and Lhanbryde to East of Fochabers (see plans in Appendix A). The option assessment process considers these three sections separately. The following sub-sections describe the options under consideration.

2 BACKGROUND

2.3.1 Hardmuir to Hillhead

North Option

This option is 15.1km in length. Describing from west to east, the route runs south of the existing A96 from Wester Hardmuir to Feddan Farm. At Feddan Farm the route turns to the south and crosses the Muckle Burn. The route then heads north-east through the Forres West Junction, bridging over the existing A96 and the Inverness to Aberdeen Railway.

It then runs parallel to the Aberdeen - Inverness Railway, crossing the River Findhorn. Turning north-east, the route passes Forres and crosses over the Burn of Mosset and the Aberdeen to Inverness Railway north of Springfield. The route continues east, and then turns south-east to cross the existing A96 at the proposed Forres East junction, adjacent to Forres Enterprise Park.

The route continues running parallel with the existing A96 and ties into the Hillhead to Lhanbryde section.

South Option

This option is 16.6km in length. The route follows the same alignment as the North Option for the first 3km. After the Muckle Burn Crossing the route continues east to the Forres West Junction.

The route then turns south-east through the northern tip of Darnaway Forest and crosses the River Findhorn at Mundole. Continuing south-east the route crosses beneath the A940 Forres - Grantown Road where the Forres South Junction is formed.

The route continues east and crosses the Dava Way and then turns north-east, passing Forres. Heading east, the route crosses the Kinloss Burn.

Through the Forres East Junction the route turns east running parallel to the existing A96. The route continues running parallel to the existing A96, and ties into the Hillhead to Lhanbryde section.

2.3.2 Hillhead to Lhanbryde

North Option

This route option is 22.6km in length. The route commences at the tie in with the Hardmuir to Hillhead options and continues eastwards, diverging from the line of the existing A96, heading to the south of Alves Wood.

2 BACKGROUND

The route turns east and continues to pass over the Aberdeen to Inverness Railway, south of Alves. Heading east the route forms the proposed grade separated Elgin West Junction where it crosses the existing A96.

The route turns north-east and passes Quarrelwood. To the north of Findrassie Wood the route continues and turns south-east and crosses the existing A941 Lossiemouth – Elgin Road, where the Elgin North Junction is formed.

The route continues south-east to pass around Kirkhill Wood and crosses over the River Lossie. The Elgin East Junction is formed immediately to the north of the existing A96.

The route continues south-east to cross over the Aberdeen - Inverness Railway before heading east, to run parallel to the railway. The alignment runs to the south of Lhanbryde where it crosses the Lhanbryde Burn and then ties into the Lhanbryde to East of Fochabers options.

South Option

This route option is 20.0km in length. The route commences at the tie in with the Hardmuir to Hillhead options and continues parallel to the existing A96 and passes through Alves Wood. Heading east the route deviates away from the existing A96 and runs south of and parallel to the Aberdeen to Inverness Railway. The route crosses over the Mosstowie Canal and heads south-east to the north of Lochinver Quarry, where the Elgin West Junction is formed.

A 1.9km long link road is provided to connect Elgin West Junction to the existing A96 at its junction with Morrision Road in Elgin.

Heading south-east the route crosses over the River Lossie and continues east to pass below the A941 Elgin-Dufftown Road, where the Elgin South Junction is formed.

The route continues east and turns north-east approaching the south of Lhanbryde where the Elgin East Junction is formed.

The alignment continues south of Lhanbryde where it crosses the Lhanbryde Burn and then ties into the Lhanbryde to East of Fochabers options.

2 BACKGROUND

2.3.3 Lhanbryde to East of Fochabers

North Option

This route is 11.3km in length. The route commences at the tie in with the proposed Hillhead to Lhanbryde options and runs adjacent to the existing A96. The route continues east through Threapland Wood crossing over the Aberdeen - Inverness to Railway and then heads east towards Mosstodloch, passing through Balnacoul Wood after which the proposed grade separated Mosstodloch Junction is formed.

The route continues east and crosses over the River Spey, and then runs along the line of the existing A96. The grade separated Fochabers East Junction is formed where the route crosses over the existing A96/A98 Fochabers East roundabout.

From the junction the route heads south-east through Leitch's Wood and ties in with the existing A96.

South Option

This route is 11.2km in length. The route follows the same alignment as the North Option until it reaches Easter Bauds where the Mosstodloch Junction is formed.

Continuing south-east the route passes along the southern boundary of Balnacoul Wood and turns east to run on structure over the River Spey flood plain. The route continues east the route through Slorach's Wood. Where it crosses the valley of the Burn of Fochabers the proposed Fochabers East Junction is formed.

The route continues east to tie in with the existing A96.

2.4 KEY ENGINEERING CONSTRAINTS

Key engineering constraints that have been considered in route option development are given below:

- Properties and local communities: the route options have been developed to avoid the need for property demolition and, where possible, potential impacts on communities. Where practicable, the alignments have been developed to minimise severance;
- Existing topography: the vertical geometry of each route option has been designed to optimise earthworks to maximise re-use of on-site material where practical while achieving the required headroom

2 BACKGROUND

clearances to road, rail, river and watercourse crossings, and ensuring adequate road drainage;

- Aberdeen to Inverness Railway: following consultation with Network Rail, the design of the railway crossings takes into account the necessary headroom and span requirements to accommodate potential improvements to the Aberdeen to Inverness Railway including twin tracking and electrification;
- Public utilities: there are a number of underground and overhead utilities, including high pressure gas pipeline and 132kV transmission power lines;
- Local Road network: the route options have been developed taking account of the existing local road network; and
- Junctions and accesses: there are numerous existing direct accesses onto the existing A96 and the local road strategy maintains access to all properties.
- The A96 is a High Load Route with overbridges on the new dual carriageway being designed with the appropriate headroom for larger vehicles

2.5 KEY ENVIRONMENTAL CONSTRAINTS

Key environmental constraints that have been considered in route option development are given below:

- Communities and scattered properties (noise, visual, air quality, severance, access)
- Prime Agricultural Land
- Development sites (severance, loss of land, access, etc.)
- River Spey: Natura 2000 sites; wildlife interests; landscape, and recreational interests
- Other designated areas (ecology and landscape) and key watercourses (River Findhorn, River Lossie)
- Woodlands (landscape, ecology, recreation interests)
- Gardens and Designed Landscapes (e.g. Brodie Castle, Gordon Castle Estate)
- Cultural heritage sites (e.g. Dallas Dhu and Coxton Tower)
- Dipple Abstraction Scheme, Fochabers
- Areas at risk of flooding
- NMU routes

2.6 SCHEME COSTS

Scheme cost estimates for each option have been developed and are shown in the following tables (2018 Q1 prices excluding VAT).

2 BACKGROUND

The totals have also been included in the Option Assessment Tables in Sections 3.2 – 3.4. The cost estimates include a quantified risk allowance and 25% optimism bias.

Route Option	Scheme Total (£M)
Hardmuir to Hillhead – North Option	£279.6
Hardmuir to Hillhead – South Option	£263.8
Hillhead to Lhanbryde – North Option	£354.3
Hillhead to Lhanbryde – South Option	£329.6
Lhanbryde to East of Fochabers – North Option	£212.3
Lhanbryde to East of Fochabers – South Option	£250.5

Hardmuir to Hillhead

Despite the South Option being 10% longer and requiring more structures, the North Option is more expensive primarily due to the extensive flood plain and therefore the requirement to import a large volume of earthworks material for embankments.

Hillhead to Lhanbryde

Despite the South Option requiring more structures, the North Option is more expensive due to it being 10% longer, requiring a greater volume of earthworks material to be imported, and has slightly more expensive land and compensation costs.

Lhanbryde to East of Fochabers

Although the North Option has a higher earthworks cost, the South Option is more expensive mainly due to the larger crossing of the River Spey and both the utility mitigation and risk costs associated with the Spey Abstraction Scheme.

2.7 OPTIONS ASSESSMENT TABLES

The six criteria used for the assessment were:

- 1 Economy
- 2 Safety
- 3 Environment / Sustainability
- 4 Accessibility
- 5 Integration
- 6 Other
 - Promotability through the statutory process
 - Minimise disruption during construction, and,
 - Facilitate operational resilience

2 BACKGROUND

Under the main criteria, a number of sub-criteria were created based on the scheme objectives. The comparative assessment utilised a scoring process where the best option scored 10 points and the other option was then compared against the best.

The sub-criteria had assigned weightings to reflect their importance. The product of the weighting and the individual scores gives a utility score for the objective criteria. The summation of all utility scores provides a total utility score for each option. The utility score when divided by capital cost provides a Value Index measure.

PVBs, NPVs and the BCRs were also examined for each end to end option as reported in Section 3.5.

3 WORKSHOP OUTPUTS

3 WORKSHOP OUTPUTS

3.1 INTRODUCTION

The workshop was divided into a series of related sessions, commencing with introductory/background presentations and then route options assessment as follows:

1. West: Hardmuir to Hillhead
2. Central: Hillhead to Lhanbryde
3. East: Lhanbryde to East of Fochabers
4. Overall End to End Review

The overall End-End review enabled inclusion of the economic metrics (Present Value Benefits, Net Present Value and Benefit Cost Ratio) to compare these with the utility and value index outputs from the individual West, Central and East sections options assessments.

Introductory background presentation material and supporting information relating to each of the above option assessment sessions can be found in Appendix B.

The following sub-sections provide the output assessment tables with any changes made to the draft matrices presented by the consultants shown in **red**.

3 WORKSHOP OUTPUTS

3.2 WESTERN SECTION: HARDMUIR TO HILLHEAD

Main Criteria / Government Policy	Sub-Criteria/Scheme Objectives	Weighting	Ten Point Scale Score		Weighted Score		Comments
			North	South	North	South	
Economy	Improve operation of A96...	10	10	7	100	70	Journey Time Savings on A96
	Provide opportunities to grow regional economy	10	10	9	100	90	Number of employment trips within 5km of Scheme junctions
Economy sub-total		20	20	16	200	160	
Safety	Accident savings & Reduced driver frustration	10	10	7	100	70	Driver frustration qualitative assessment
	Reduced non-motorised user conflicts	10	10	10	100	100	Reduction in AADT on detrunked A96 at Forres Rail Station and at Brodie
Safety sub-total		20	20	17	200	170	
Environment	Policies & Plans	0.5	8	10	4	5	Output assessed from Stage 2 Summary - 2015 LDP & Planning applications up to 31/08/18
	Air Quality	0.5	10	10	5	5	Output assessed from Stage 2 Summary
	Noise & Vibration	2	6	10	12	20	Output assessed from Stage 2 Summary
	People & Communities	2	10	6	20	12	Output assessed from Stage 2 Summary
	Agriculture	2	9	10	18	20	Output assessed from Stage 2 Summary
	Materials	1	8	10	8	10	Assessment includes both quantitative and weighted approach to materials i.e. concrete, steel, pavement and earthworks
	Visual Effects	2	10	6	20	12	Output assessed from Stage 2 Summary
	Cultural Heritage	2	7	10	14	20	Output assessed from Stage 2 Summary
	Landscape	2	10	6	20	12	Output assessed from Stage 2 Summary
	Nature Conservation	2	10	6	20	12	Output assessed from Stage 2 Summary
	Geology, Soils, Contaminated Land and Groundwater	2	10	8	20	16	Output assessed from Stage 2 Summary
Road Drainage and Water Environment	2	10	10	20	20	Output assessed from Stage 2 Summary	
Environment sub-total		20	108	102	181	164	
Accessibility	To facilitate active travel in the corridor	20	10	6	200	120	Opportunity to improve connections between communities
Accessibility sub-total		20	10	6	200	120	

3 WORKSHOP OUTPUTS

Main Criteria / Government Policy	Sub-Criteria/Scheme Objectives	Weighting	Ten Point Scale Score		Weighted Score		Comments
			North	South	North	South	
Integration	To facilitate integration with Public Transport facilities	10	10	9	100	90	Reduction in AADT at bus stops on Fochabers High Street
	Policies & Plans	10	9	10	90	100	A qualitative assessment of strategic development opportunities and integration with wider land use served by A96 corridor, including effect on sites in Main Issues Report for 2020 LDP
Integration sub-total		20	19	19	190	190	
Others	Promotability through the statutory process	7	10	8	70	56	Review of 'Performance' & 'Reputation' risk impact type categories
	Minimise disruption during construction	7	8	10	56	70	Complex interfaces with existing network, railways and rivers; consideration of online construction
	Facilitate operational resilience	6	10	9	60	54	Resilience of existing network to closure of new dualled A96 links
Other sub-total		20	28	27	186	180	
Utility Score Totals			205	187	1157	984	
Cost £M excluding Risk (2018 Q1)					271.4	253.8	
Value Index (Utility / Cost) excluding Risk					4.3	3.9	
Cost £M including Risk (2018 Q1)					279.6	263.8	
Value Index (Utility / Cost) including Risk					4.1	3.7	

Summary

The North Option has higher utility scores for Economy and Safety, and also provides better opportunities for improved active travel in the corridor. For Environment overall, North scores higher than South. Whilst North scores less for Noise and Cultural Heritage, South is worse for visual, landscape and nature conservation impacts. Scoring for environment is based on the unmitigated impact and during Stage 3 further consideration on reducing these impacts would be undertaken on the preferred option. Integration scores are equal and for Other criteria North is slightly better than South.

Overall, the North route alignment has the higher Utility Score (+17.6%) and Value Index (Utility / Cost: +10.2% excluding risk; +10.8% including risk) compared to the South Route, but is 6.0% more expensive (for cost including risk).

The workshop conclusion was that the North Option is preferred subject to overall end-end review.

3 WORKSHOP OUTPUTS

3.3 CENTRAL SECTION: HILLHEAD TO LHANBRYDE

Main Criteria / Government Policy	Sub-Criteria/Scheme Objectives	Weighting	Ten Point Scale Score		Weighted score		Comments
			North	South	North	South	
Economy	Improve operation of A96...	10	6	10	60	100	Journey Time Savings on A96
	Provide opportunities to grow regional economy	10	10	7	100	70	Number of employment trips within 5km of Scheme junctions
Economy sub-total		20	16	17	160	170	
Safety	Accident savings & Reduced driver frustration	10	6	10	60	100	COBALT PVB and driver frustration qualitative assessment
	Reduced non-motorised user conflicts	10	10	8	100	80	Reduction in AADT on detrunked A96 at Alexandra Road (East), Elgin
Safety sub-total		20	16	18	160	180	
Environment	Policies & Plans	0.5	10	10	5	5	Output assessed from Stage 2 Summary - 2015 LDP & Planning applications up to 31/08/18
	Air Quality	0.5	10	10	5	5	Output assessed from Stage 2 Summary
	Noise & Vibration	2	8	10	16	20	Output assessed from Stage 2 Summary
	People & Communities	2	10	9	20	18	Output assessed from Stage 2 Summary
	Agriculture	2	6	10	12	20	Output assessed from Stage 2 Summary
	Materials	1	10	10	10	10	Assessment includes both quantitative and weighted approach to materials i.e. concrete, steel, pavement and earthworks
	Visual Effects	2	8	10	16	20	Output assessed from Stage 2 Summary
	Cultural Heritage	2	10	8	20	16	Output assessed from Stage 2 Summary
	Landscape	2	8	10	16	20	Output assessed from Stage 2 Summary
	Nature Conservation	2	10	7	20	14	Output assessed from Stage 2 Summary
	Geology, Soils, Contaminated Land and Groundwater	2	10	8	20	16	Output assessed from Stage 2 Summary
Road Drainage and Water Environment	2	10	8	20	16	Output assessed from Stage 2 Summary	
Environment sub-total		20	110	110	180	180	
Accessibility	To facilitate active travel in the corridor	20	9	10	180	200	Opportunity to improve connections between communities. South option better because it provides greater opportunities to connect rural settlements to Elgin.
Accessibility sub-total		20	9	10	180	200	

3 WORKSHOP OUTPUTS

Main Criteria / Government Policy	Sub-Criteria/Scheme Objectives	Weighting	Ten Point Scale Score		Weighted score		Comments
			North	South	North	South	
Integration	To facilitate integration with Public Transport facilities	10	9	10	90	100	Reduction in AADT at bus stops on Fochabers High Street
	Policies & Plans	10	10	8	100	80	A qualitative assessment of strategic development opportunities and integration with wider land use served by A96 corridor, including effect on sites in Main Issues Report for 2020 LDP
Integration sub-total		20	19	18	190	180	
Others	Promotability through the statutory process	7	9	10	63	70	Review of 'Performance' & 'Reputation' risk impact type categories
	Minimise disruption during construction	7	9	10	63	70	Complex interfaces with existing network, railways and rivers; consideration of online construction
	Facilitate operational resilience	6	10	10	60	60	Resilience of existing network to closure of new dualled A96 links
Other sub-total		20	28	30	186	200	
Utility Score Totals			198	203	1056	1110	
Cost £M excluding Risk (2018 Q1)					340.0	315.1	
Value Index (Utility / Cost) excluding Risk					3.1	3.5	
Cost £M including Risk (2018 Q1)					354.3	329.6	
Value Index (Utility / Cost) including Risk					3.0	3.4	

Summary

The South Option gives a slightly higher utility score for Economy and provides more Safety benefits. It also provides slightly better opportunities for improved active travel in the corridor between Elgin and Forres. Overall Environment scores (based on the unmitigated impacts) are equal for both options but within the sub-criteria there are specific impacts associated with each route e.g. North scores less for Noise, Agriculture and Visual, whilst South has impacts on Cultural Heritage, Landscape and Soil/Geology/ Water. During Stage 3 further consideration on reducing these impacts would be undertaken for the preferred route. Integration scores show a slight preference to North whilst for Other criteria, South is better.

Overall, the South Option alignment has the higher Utility Score (+5.1%) and Value Index (Utility / Cost: +12.9% excluding risk; +13.3% including risk) compared to the North Route. The costs including risk show that the South route is 7.5% lower than for the North Option.

The workshop conclusion was that South Option is preferred subject to overall end-end review.

3 WORKSHOP OUTPUTS

3.4 EASTERN SECTION: LHANBRYDE TO EAST OF FOCHABERS

Main Criteria / Government Policy	Sub-Criteria/Scheme Objectives	Weighting	Ten Point Scale Score		Weighted score		Comments
			North	South	North	South	
Economy	Improve operation of A96...	10	10	10	100	100	Journey Time Savings on A96
	Provide opportunities to grow regional economy	10	9	10	90	100	Number of employment trips within 5km of Scheme junctions
Economy sub-total		20	19	20	190	200	
Safety	Accident savings & Reduced driver frustration	10	9	10	90	100	COBALT PVB and driver frustration qualitative assessment
	Reduced non-motorised user conflicts	10	10	10	100	100	Reduction in AADT on detrunked A96 at the River Spey Bridge
Safety sub-total		20	19	20	190	200	
Environment	Policies & Plans	0.5	9	10	4.5	5	Output assessed from Stage 2 Summary - 2015 LDP & Planning applications up to 31/08/18
	Air Quality	0.5	10	10	5	5	Output assessed from Stage 2 Summary
	Noise & Vibration	2	7	10	14	20	Output assessed from Stage 2 Summary
	People & Communities	2	8	10	16	20	Output assessed from Stage 2 Summary
	Agriculture	2	10	10	20	20	Output assessed from Stage 2 Summary
	Materials	1	10	9	10	9	Assessment includes both quantitative and weighted approach to materials i.e. concrete, steel, pavement and earthworks
	Visual Effects	2	10	10	20	20	Output assessed from Stage 2 Summary
	Cultural Heritage	2	6	10	12	20	Output assessed from Stage 2 Summary
	Landscape	2	8	10	16	20	Output assessed from Stage 2 Summary
	Nature Conservation	2	10	10	20	20	Output assessed from Stage 2 Summary
	Geology, Soils, Contaminated Land and Groundwater	2	10	8	20	16	Output assessed from Stage 2 Summary
Road Drainage and Water Environment	2	10	8	20	16	Output assessed from Stage 2 Summary	
Environment sub-total		20	108	115	177.5	191	
Accessibility	To facilitate active travel in the corridor	20	10	9	200	180	Opportunity to improve connections between communities. Better accessibility opportunities for north option to provide active travel between Lhanbryde-Mosstodloch-Fochabers.
Accessibility sub-total		20	10	9	200	180	

3 WORKSHOP OUTPUTS

Main Criteria / Government Policy	Sub-Criteria/Scheme Objectives	Weighting	Ten Point Scale Score		Weighted score		Comments
			North	South	North	South	
Integration	To facilitate integration with Public Transport facilities	10	10	10	100	100	Reduction in AADT at bus stops on Fochabers High Street. In overall terms, they balance each other out. Risk that south option will discourage buses from Fochabers and Lhanbryde.
	Policies & Plans	10	10	10	100	100	A qualitative assessment of strategic development opportunities and integration with wider land use served by A96 corridor, including effect on sites in Main Issues Report for 2020 LDP
Integration sub-total		20	20	20	200	200	
Others	Promotability through the statutory process	7	10	6	70	42	Review of 'Performance' & 'Reputation' risk impact type categories
	Minimise disruption during construction	7	8	10	56	70	Complex interfaces with existing network, railways and rivers; consideration of online construction
	Facilitate operational resilience	6	8	10	48	60	Resilience of existing network to closure of new dualled A96 links
Other sub-total		20	26	26	174	172	
Utility Score Totals			202	210	1132	1143	
Cost £M excluding Risk (2018 Q1)					202.6	234.1	
Value Index (Utility / Cost) excluding Risk					5.6	4.9	
Cost £M including Risk (2018 Q1)					212.3	250.5	
Value Index (Utility / Cost) including Risk					5.3	4.6	

Summary

The South Option has slightly higher scores for Economy and Safety. Overall Environment scores (based on the unmitigated impacts) have the South route scoring better than North, with South scoring better on People/Community, Noise, Cultural Heritage and Landscape but worse for Geology/Soils etc. and Drainage/Water. During Stage 3 further consideration on reducing these impacts would be undertaken on the preferred option. In terms of accessibility, North option is better as it provides greater opportunity to improve active travel to the settlements of Lhanbryde, Mosstodloch and Fochabers. Integration scores are equal and for Other criteria, North is slightly better than South. Key to note within the scoring for Other criteria relates to "Promotability Through Statutory Process" where the South Option could have a significant impact on the Spey Water abstraction scheme.

Overall, the South Option has a marginally better Utility Score (+1%). Cost including risk, significantly favours the North route, with South route being some 18.0% more expensive. The associated Value Index has the North route performing better than South (Utility / Cost: +14.3% excluding risk; +15.2% including risk).

The workshop conclusion was that the North Option is preferred, subject to overall end-end review.

3 WORKSHOP OUTPUTS

3.5 OVERALL END TO END REVIEW

The overall end-end review included an assessment of the various route option permutations arising when each section option for West, Central and East are compiled to produce an end to end route alignment. These permutations of route alignments result in the following overall route options:

End-End Option	West Section	Central Section	East Section
Option 1	N	N	N
Option 2	N	N	S
Option 3	N	S	N
Option 4	N	S	S
Option 5	S	N	N
Option 6	S	N	S
Option 7	S	S	N
Option 8	S	S	S

For each of the North or South options in the West, Central and East sections, individual utility assessment scores, costs (including and excluding risk) and value indices were allocated to the eight overall options, and carried forward to an overall end-end options assessment matrix, shown in Section 3.5.1.

Also included in the overall assessment were the economic metrics of Net Present Benefits, Net Present Value and Benefit Cost Ratio for each of the above eight, end-end options.

The end-to-end review confirms that Option 3: North-South-North is the overall preferred option.

3 WORKSHOP OUTPUTS

3.5.1 End-End Summary Assessment Outputs

		Combined Utility Score Totals	Rank	Combined Cost £M incl Risk	Rank	Combined Value Index (Utility / Cost)	Rank	Present Value of benefits (PVB)	Rank	Net Present Value (NPV)	Rank	Benefit/Cost Ratio (BCR)	Rank	Overall Ranking Score
Option 3	N-S-N	3399	2	822	2	12.8	1	580	1	119	1	1.3	1	8
Option 7	S-S-N	3226	6	806	1	12.4	2	551	4	99	2	1.2	2	17
Option 4	N-S-S	3410	1	860	6	12.1	4	564	2	82	3	1.2	2	18
Option 1	N-N-N	3345	4	846	5	12.4	2	540	5	65	4	1.1	4	24
Option 8	S-S-S	3237	5	844	4	11.7	6	533	6	60	6	1.1	4	31
Option 2	N-N-S	3356	3	884	8	11.7	6	561	3	65	4	1.1	4	28
Option 5	S-N-N	3172	8	830	3	12.0	5	519	7	53	7	1.1	4	34
Option 6	S-N-S	3183	7	869	7	11.3	8	498	8	11	8	1.0	8	46

Summary

Option 3 (N-S-N) has the best ranking score for Value Index, PVB, NPV and BCR. Option 3 is second for overall Utility Score compared with Option 4 (N-S-S). Option 3 also ranks second for capital costs with Option 7 (S-S-N) being best ranked.

Taking all assessment categories into account and summing the ranking score for each option has Option 3 best ranking score (total 8) followed by Option 7 (total 17) and Option 4 (total 18).

3 WORKSHOP OUTPUTS

3.6 SENSITIVITY TEST

There was some discussion at the workshop regarding the Other sub-criteria of “Promotability Through Statutory Process” and whether the assessment output was sensitive to the inclusion of this item or not.

The following table shows the utility scores without this sub-criteria. Note the remaining two sub-criteria, construction impact and operational resilience, were re-weighted equally at 10 for the purposes of the comparison.

3.6.1 Overall Utility Score - Excluding Promotability Sub-Criterion.

The table below shows the revised total Utility scores excluding promotability sub-criteria and overall ranking scores.

		Utility Score Totals	Rank	Overall Ranking Score
Option 4	N-S-S	3432	1	18
Option 2	N-N-S	3382	2	28
Option 3	N-S-N	3379	3	9
Option 1	N-N-N	3329	4	25
Option 8	S-S-S	3275	5	31
Option 6	S-N-S	3225	6	45
Option 7	S-S-N	3222	7	18
Option 5	S-N-N	3172	8	33

When excluding the “promotability” score this moves Option 4 (N-S-S) to be the highest Utility score with Option 2 second and Option 3 ranked third. However, Option 3 remains highest ranking in all the Value Indices and end to end economic metrics. This is then reflected in this option continuing to be first in overall ranking terms.

The workshop concluded that Option 3 (N-S-N) is the preferred, end to end option.

4 WORKSHOP LOGISTICS

4 WORKSHOP LOGISTICS

4.1 AGENDA

The agenda timings were flexible but all elements were included.

9.15 **Tea/Coffee**

9.30 **Introduction** (30mins)

- △ Introductions, objectives, process, agenda, rules & roles
- △ Background to A96 Dualling Programme, DMRB Stage 2 Study, scheme objectives, current status and overview – Niamh Callaghan (5mins)
- △ Route options identification, sifting/pairwise process, current route alignments and sections – MMS (15mins)
- △ Questions & Answers

10.00 **Session 1– Hardmuir to Hillhead Section - Route Options** (15mins)

- △ Key constraints and route options described including Engineering, Environment, Traffic/Economics/capital costs – MMS
- △ Questions & Answers

10.15 **Option Matrix Assessment** (45mins)

- △ Option assessment criteria and weighting explained
- △ Confirm the scheme options to be assessed
- △ Each evaluation criteria to be introduced and initial scoring for each to be provided by MMS
- △ Discussion on the performance of each option against the criteria
- △ Undertake any changes to the draft scoring for each criterion

11.00 **Coffee**

11.15 **Session 1 – Option Matrix Assessment cont'd** (45mins)

- △ Continue undertaking comparative options scoring assessment for each criteria
- △ Incorporation of capital costs including risk
- △ Review of utility score and value index
- △ Discussion on the outputs from the matrix evaluation and rankings of options against key metric
- △ Reviews of risks for options - does one option have a greater delivery risk?

4 WORKSHOP LOGISTICS

Taking into account the above what is the preferred route option between Hardmuir and Hillhead to take forward?

Are there any actions arising from the workshop?

12.00 **Session 2 – Hillhead to Lhanbryde Section - Route Options**
(30mins)

Δ Key constraints and route options described including Engineering, Environment, Traffic/Economics/capital costs –MMS

Δ Questions & Answers

Δ Options Assessment Process as per session 1

12.30 **Lunch**

13.15 **Session 2 – Hillhead to Lhanbryde Options Assessment cont'd**
(60mins)

Δ Options Assessment process cont'd

Δ Taking into account the above what is the preferred route option between Hillhead and Lhanbryde to take forward?

Δ Are there any actions arising from the workshop?

14.15 **Session 3 – Lhanbryde to East of Fochabers Route Options**
(45mins)

Δ Key constraints and route options described including Engineering, Environment, Traffic/Economics/capital costs –MMS

Δ Questions & Answers

Δ Options Assessment process as per sessions 1 & 2

15:00 **Tea/Coffee**

15:15 **Session 3 – Lhanbryde to East of Fochabers Route Options cont'd** (30mins)

Δ Options Assessment process cont'd

Δ Taking into account the above what is the preferred route option between Lhanbryde and East of Fochabers to take forward?

Δ Are there any actions arising from the workshop?

15:45 **Overall End to End Preferred Route** (30mins)

Δ Taking account of the assessment outcomes from the three sections what is the emerging overall route alignment?

4 WORKSHOP LOGISTICS

- Δ Review of NPV and BCR values of the end to end options
- Δ Are there any reasons to change this? E.g. any key issues/risks affecting decision?

16.15 **Workshop Summary and Actions** (30mins)

- Δ Confirm the preferred options for each section and overall preferred option for the scheme.
- Δ Way Forward for the study process.
- Δ Actions Arising from workshop– Who? What? When?

16.45 **Workshop Close**

4 WORKSHOP LOGISTICS

4.2 PARTICIPANTS

The following participants attended the workshop:

Name	Organisation	Email
1 Alasdair Graham	TS A96 Dualling Programme Sponsor	alasdair.graham@transport.gov.scot
2 Craig Cameron	TS A96 Dualling Design Manager	craig.cameron@transport.gov.scot
3. Sandy Jamieson	TS Design Manager	sandy.jamieson@transport.gov.scot
4 Niamh Callaghan	TS A96 H-F Project Manager	niamh.callaghan@transport.gov.scot
5 Adam Gould	TS A96 H-F Assistant Project Manager	adam.gould@transport.gov.scot
6 Michael Rice	TS Strategic Transport Planning	michael.rice@transport.gov.scot
7 Sinead Thom	TS Environment Adviser	sinead.thom@transport.gov.scot
8 Stephen Orr	TS Strategic Communications Manager	stephen.orrcomms@transport.gov.scot
9 John McDonald	TS Development Management	john.mcdonald@transport.gov.scot
10 Kevin Knox	TS Construction Branch	kevin.knox@transport.gov.scot
11 Paul Mellon	TS Geotechnical Adviser	paul.mellon@transport.gov.scot
12 Alasdair Sim	TS Standards Branch	alasdair.sim@transport.gov.scot
13 Neil Macfarlane	TS TRBO (Network Management)	neil.macfarlane@transport.gov.scot
14 Iain Scott	MMS Contract Director	iain.scott@sweco.co.uk
15 Mike Hodgson	MMS Contract Manager	mike.hodgson@sweco.co.uk

4 WORKSHOP LOGISTICS

Name	Organisation	Email
16 Steve Wallace	MMS Roads and Infrastructure Manager	steve.wallace@sweco.co.uk
17 David Webster	MMS Roads and Infrastructure Manager	david.j.webster@mottmac.com
18 Henry Collin	MMS Deputy Environment and Landscaping Manager	henry.collin@sweco.co.uk
19 Tara O'Leary	MMS Deputy Traffic and Economics Manager	tara.oleary@sweco.co.uk
20 Ronan Lyng	MMS Senior Roads Engineer	ronan.lyng@sweco.co.uk
21 Gordon Gray	MMS Senior Roads Engineer	gordon.gray@sweco.co.uk

4.3 CAPITAL VALUE & RISK TEAM

Facilitator: Glyn Harrison

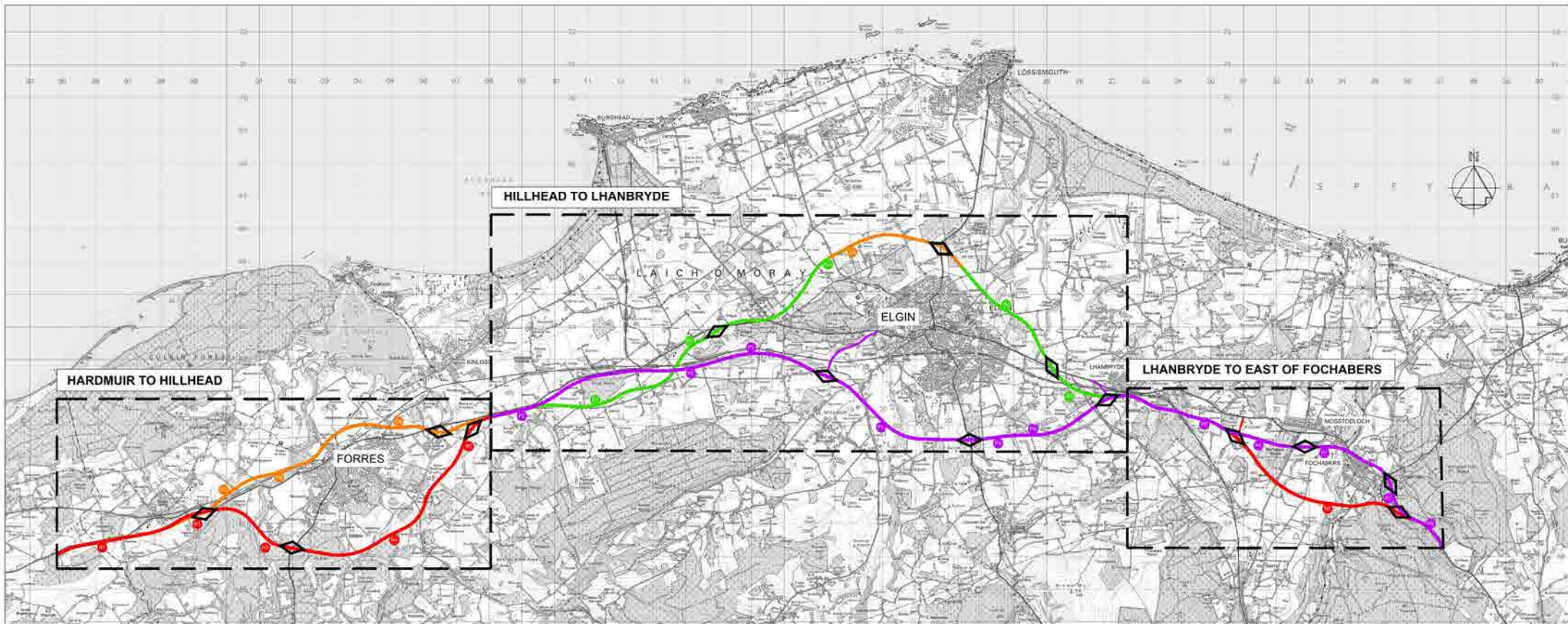
Assistant: Amanda Harrison

APPENDIX A – ROUTE OPTION PLANS

APPENDIX A – ROUTE OPTION PLANS

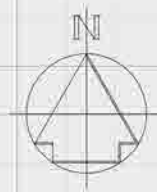


A96 Dualling Hardmuir to Fochabers Detailed Options Assessment - Shortlisted Options Value for Money Workshop









ROUTE OPTIONS - DESIGN UPDATE AUGUST 2018

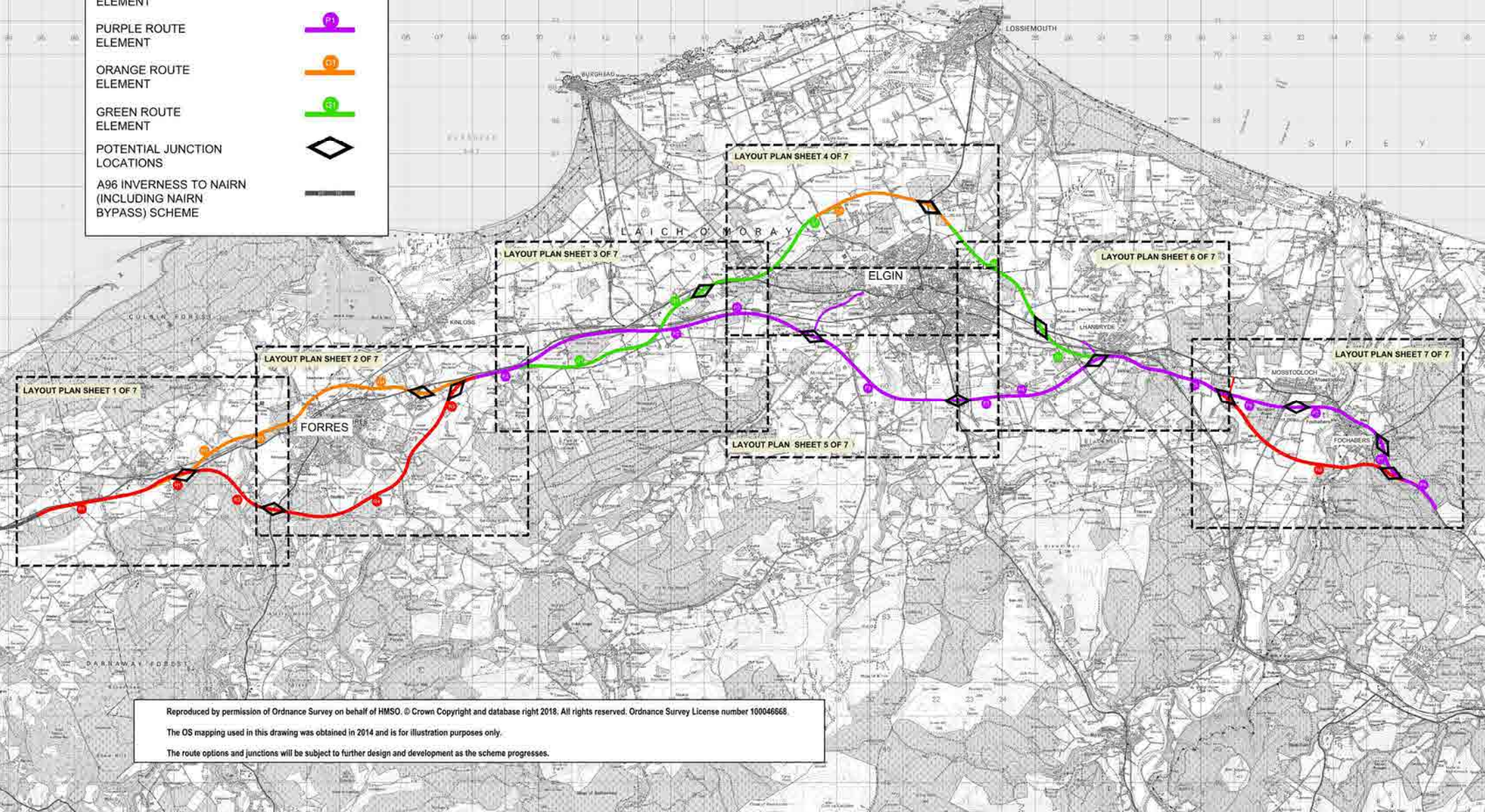
Schematic - Stage 2 Route Options Assessment



KEY

CURRENT (AUGUST 2018)

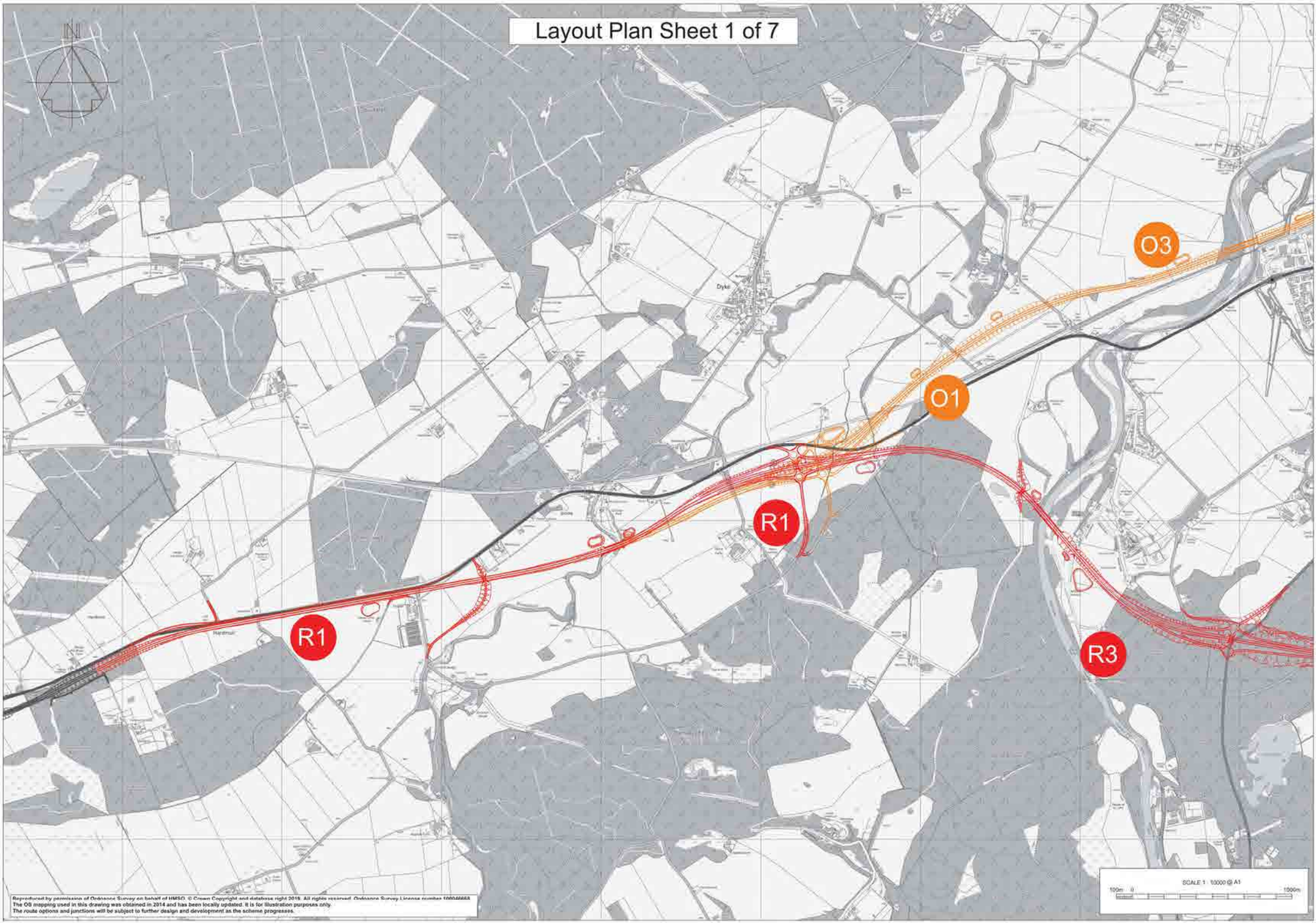
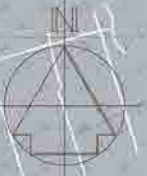
- RED ROUTE ELEMENT 
- PURPLE ROUTE ELEMENT 
- ORANGE ROUTE ELEMENT 
- GREEN ROUTE ELEMENT 
- POTENTIAL JUNCTION LOCATIONS 
- A96 INVERNESS TO NAIRN (INCLUDING NAIRN BYPASS) SCHEME 



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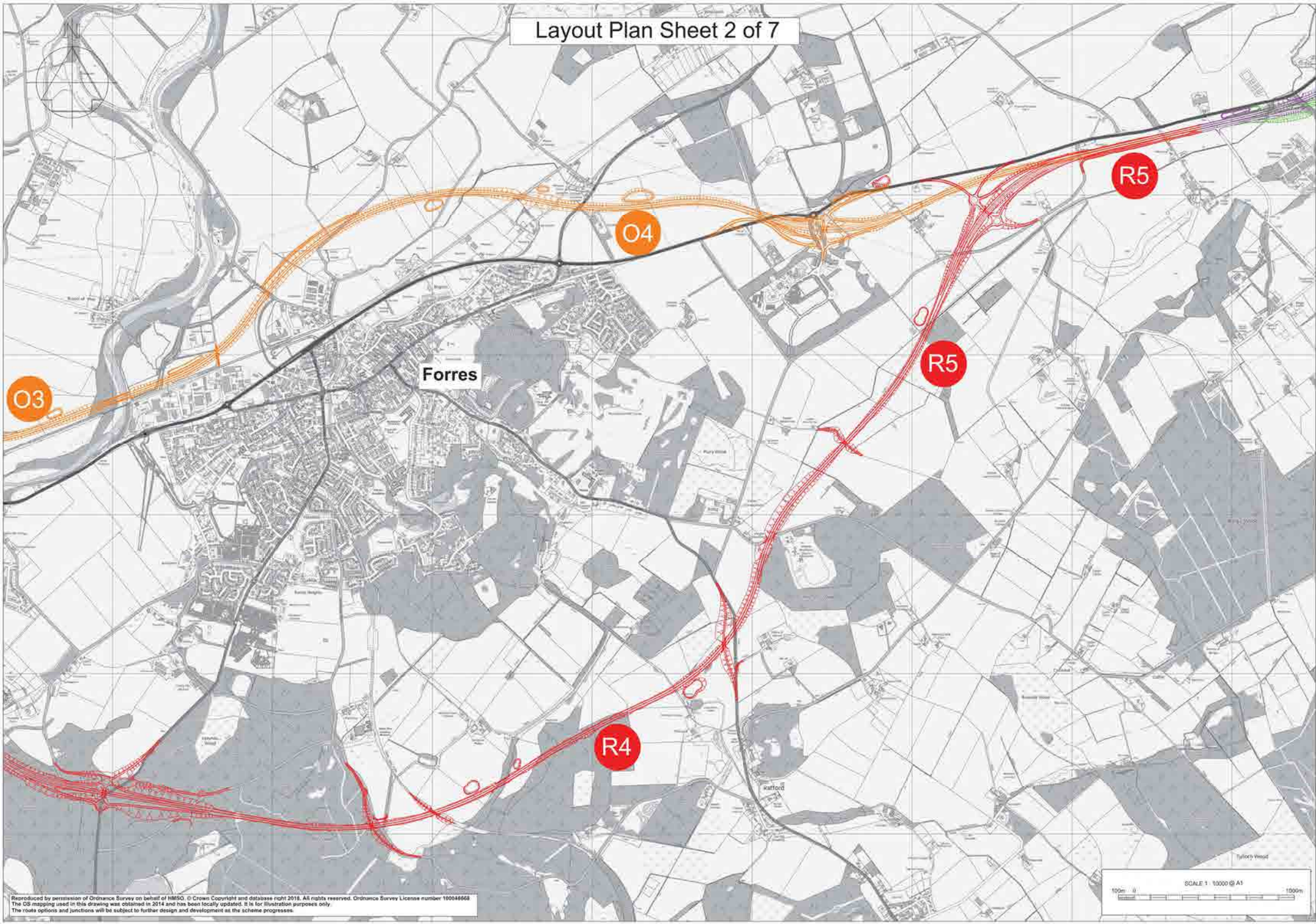
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The route options and junctions will be subject to further design and development as the scheme progresses.



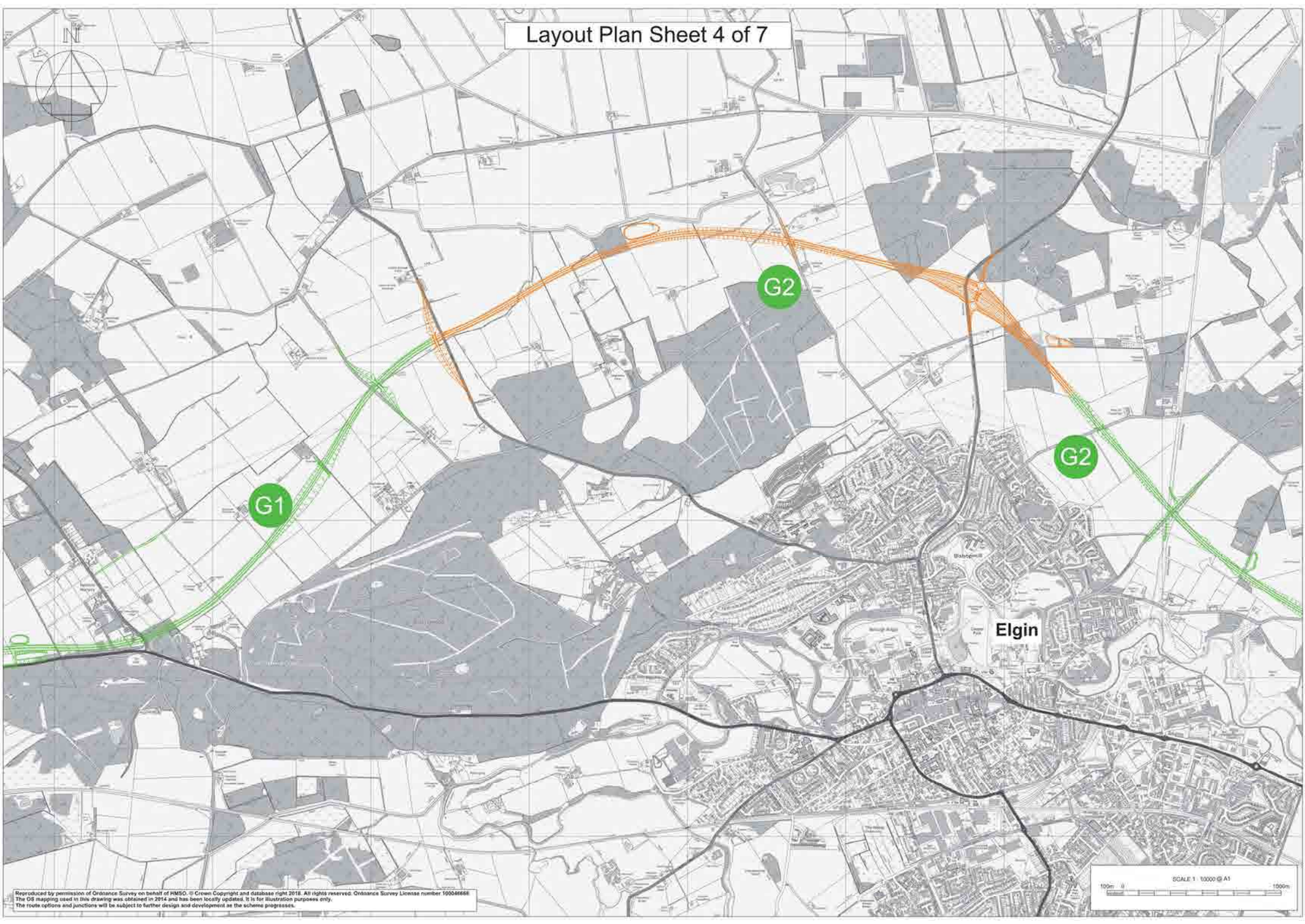
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G1

G2

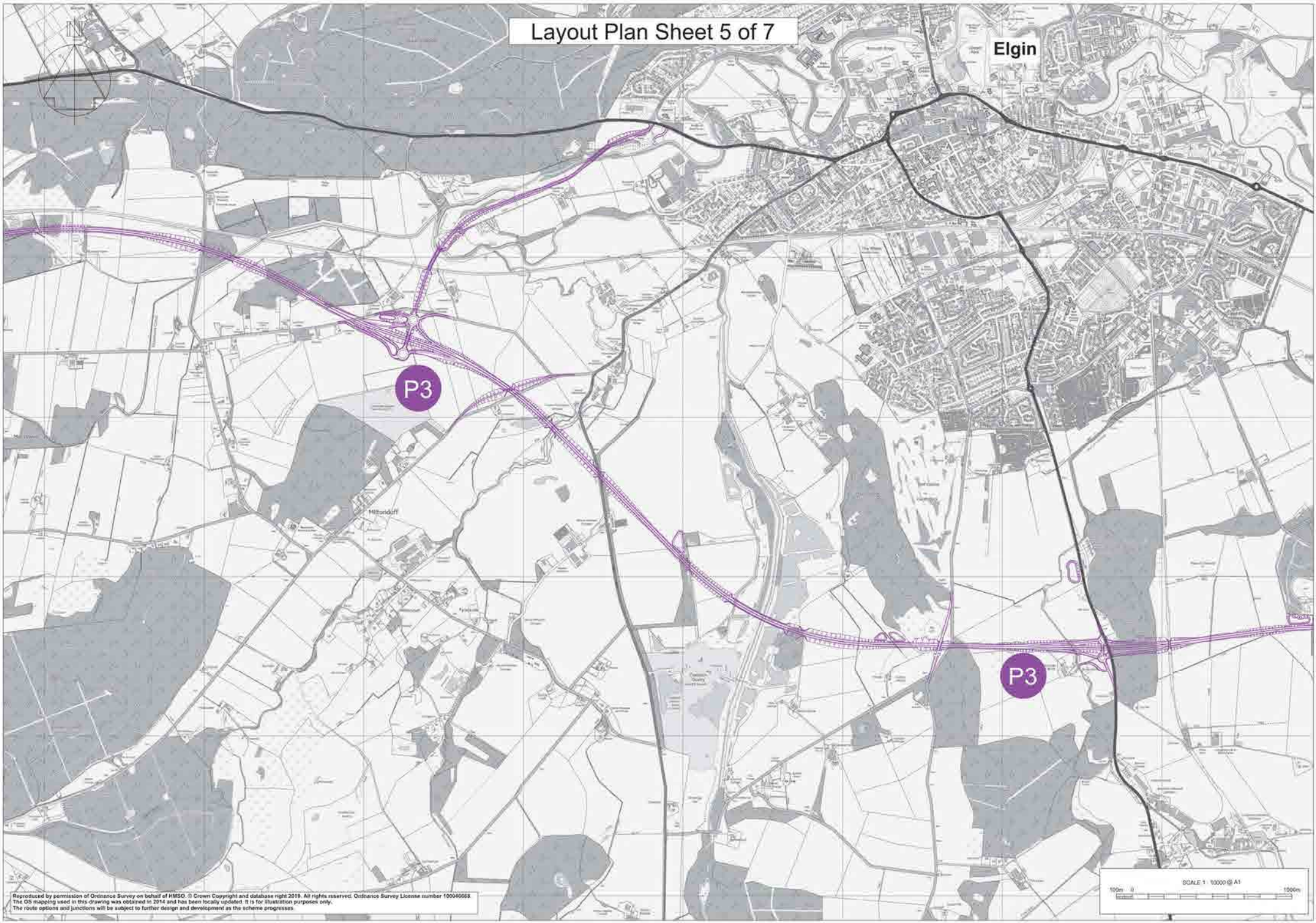
G2

Elgin

Elgin

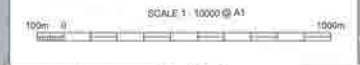
P3

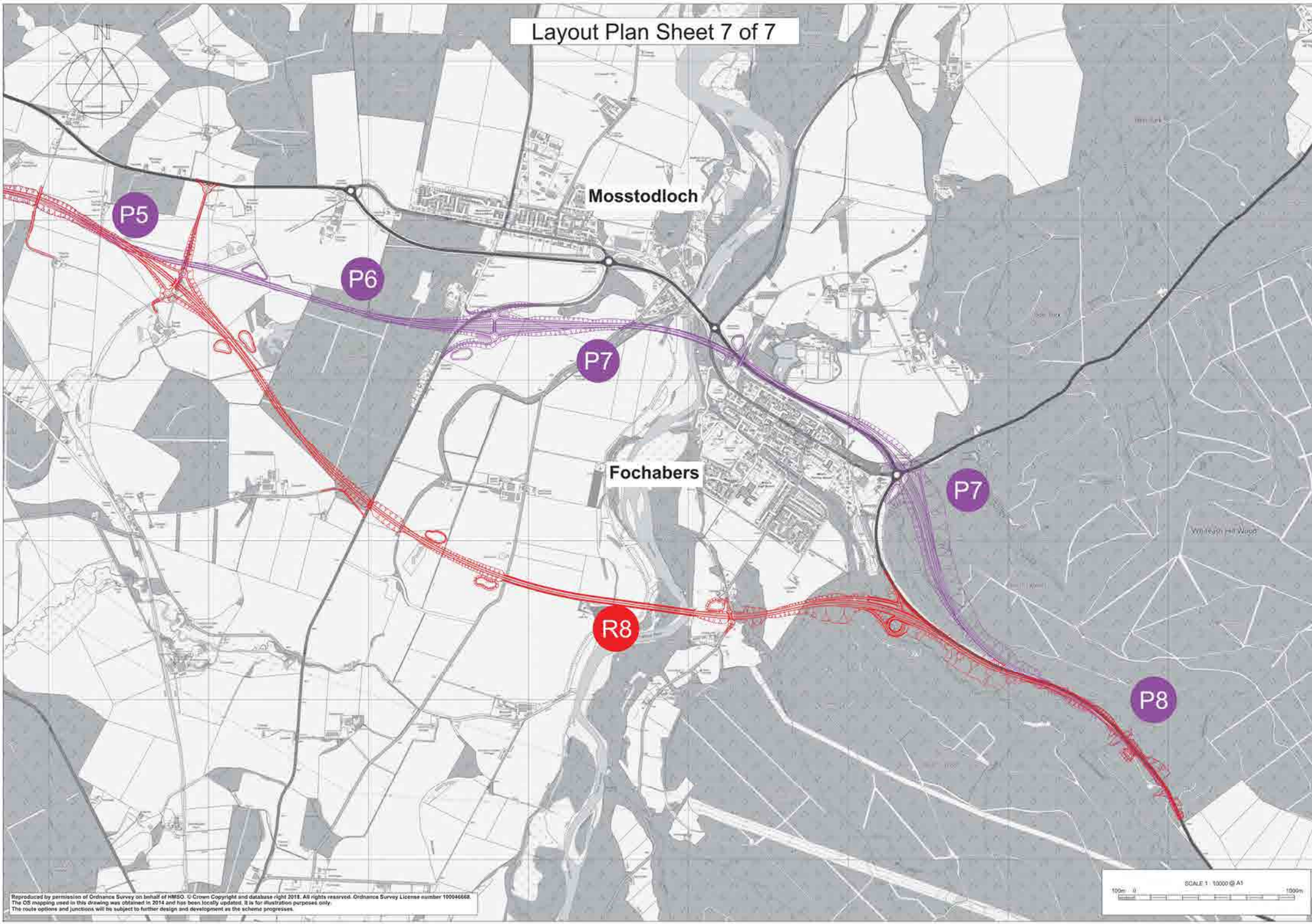
P3





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APPENDIX B – WORKSHOP PRESENTATION

APPENDIX B WORKSHOP PRESENTATION



**A96 Dualling
Hardmuir to Fochabers
DMRB Stage 2
Value for Money Workshop
20 September 2018**



**Mott MacDonald
Sweco**



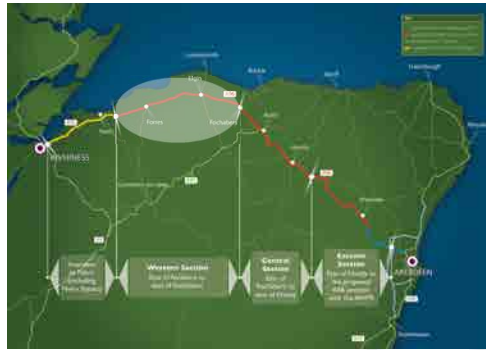
Introduction

Welcome



Purpose of Workshop

- Review the assessment frameworks relating to the shortlisted options
- Reach consensus on the emerging preferred option for the Hardmuir to Fochabers scheme



A96 Project History and Status



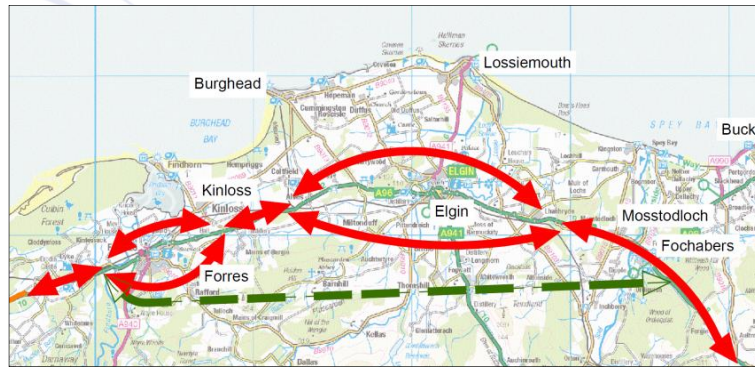
- **Strategic Transport Projects Review (2008)**
 - Intervention to upgrade A96 between Inverness and Nairn to dual carriageway
- **Infrastructure Investment Plan 2011**
 - Commitment to dual the A96 between Inverness and Aberdeen by 2030
- **Ministerial Announcement, 9th May 2013**
 - Preliminary engineering and strategic environmental assessment work was announced
- **Ministerial Announcement, 11th May 2015**
 - Based on outcome of preliminary work, next stage of design to be taken forward based on Western (46km), Central (31km) and Eastern (42km) Sections
- **A96 Dualling Hardmuir to Fochabers (Western Section)**
 - Mott MacDonald Sweco Joint Venture was appointed in June 2016

A96 Dualling Hardmuir to Fochabers Stage 1 Outcome

**A96
DUALLING**
HARDMUIR TO FOCHABERS



Outcome of DMRB Stage 1 for Hardmuir – Fochabers :
Take Improvement Strategies Option B & Option N into DMRB Stage 2



Improvement Strategy Option B (Red)
Primarily following existing A96 corridor with offline
bypasses, likely to be offline within existing corridor
with A96 retained as local road

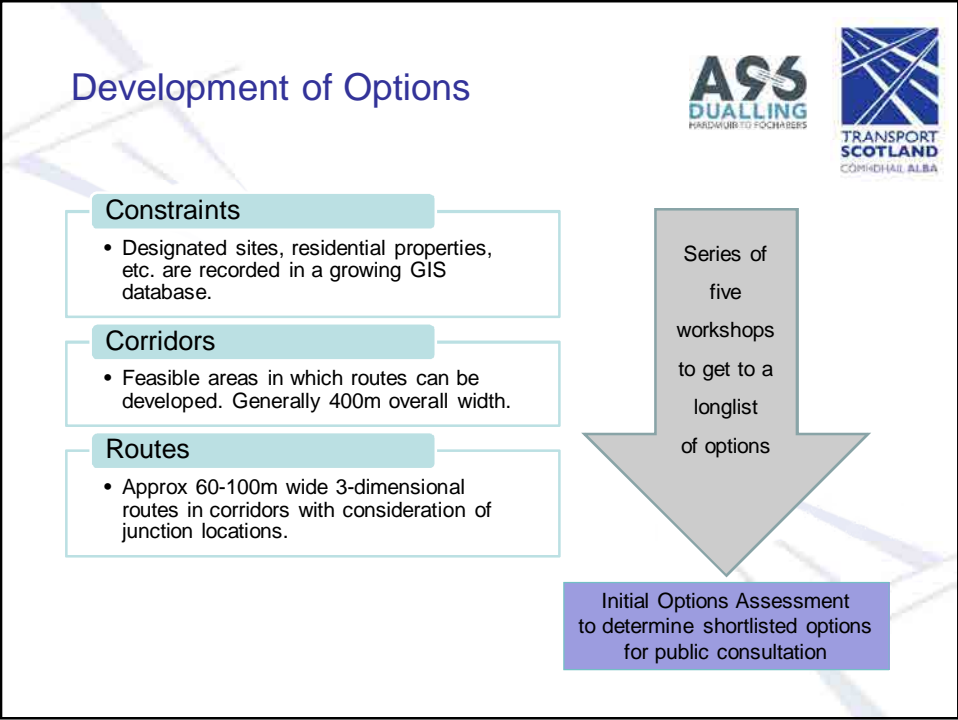
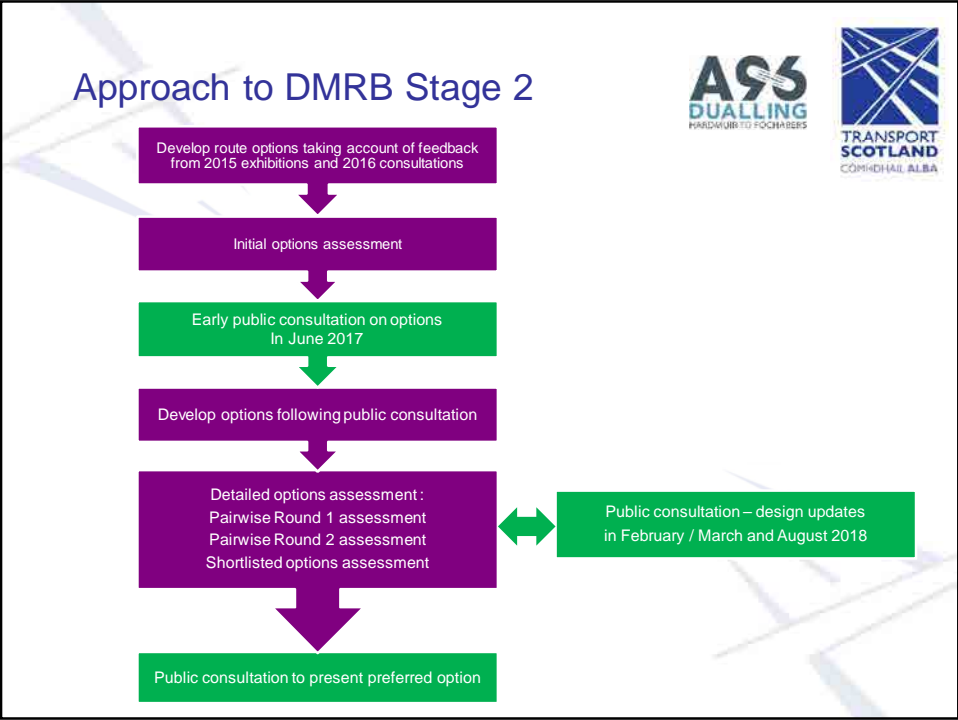
Improvement Strategy Option N (Green)
Offline from east of Nairn to
south of Fochabers

A96 Dualling Hardmuir to Fochabers Scheme Objectives

**A96
DUALLING**
HARDMUIR TO FOCHABERS



- To improve the operation of the A96 and inter-urban connectivity through:
 - Reduced journey times;
 - Improved journey time reliability;
 - Increased overtaking opportunities;
 - Improved efficiency of freight movements along the transport corridor; and
 - Reduced conflicts between local traffic and other traffic in urban areas and strategic journeys.
- To improve safety for motorised and non-motorised users through:
 - Reduced accident rates and severity;
 - Reduced driver stress; and
 - Reduced non-motorised user conflicts with strategic traffic in urban areas.
- To provide opportunities to grow the regional economies on the corridor through:
 - Improved access to the wider strategic transport network; and
 - Enhanced access to jobs and services.
- To facilitate active travel in the corridor;
- To facilitate integration with Public Transport Facilities; and
- To avoid significant environmental impacts and, where this is not possible, to minimise the environmental effect on :
 - the communities and people in the corridor; and
 - natural and cultural heritage assets.



Initial Options Assessment

(ratified at Options Sifting Workshop 19 April 2017)

A96
DUALLING
HARDAIR TO FOCHABERS



Deselected Elements:

- Yellow
- Cyan
- Blue (Eastern)
- Orange (Fochabers)

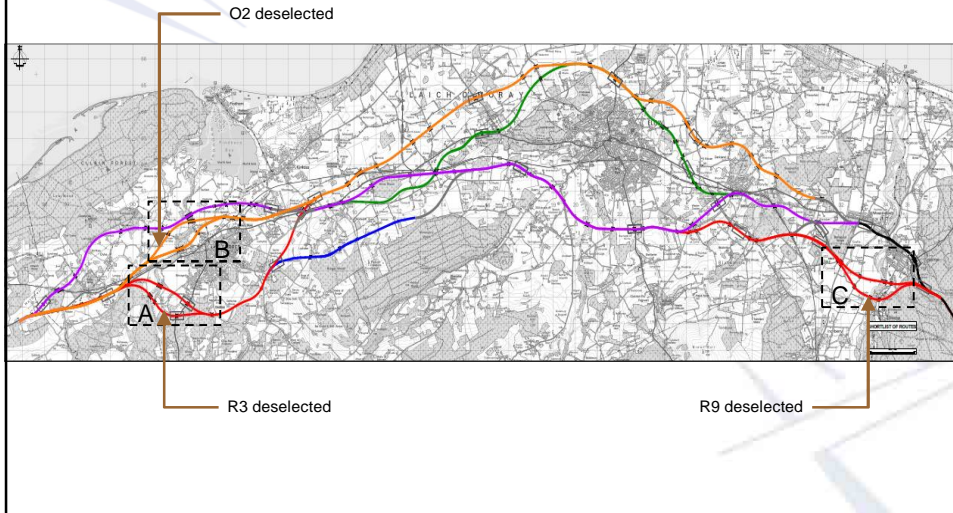
Detailed Options Assessment

A96
DUALLING
HARDAIR TO FOCHABERS

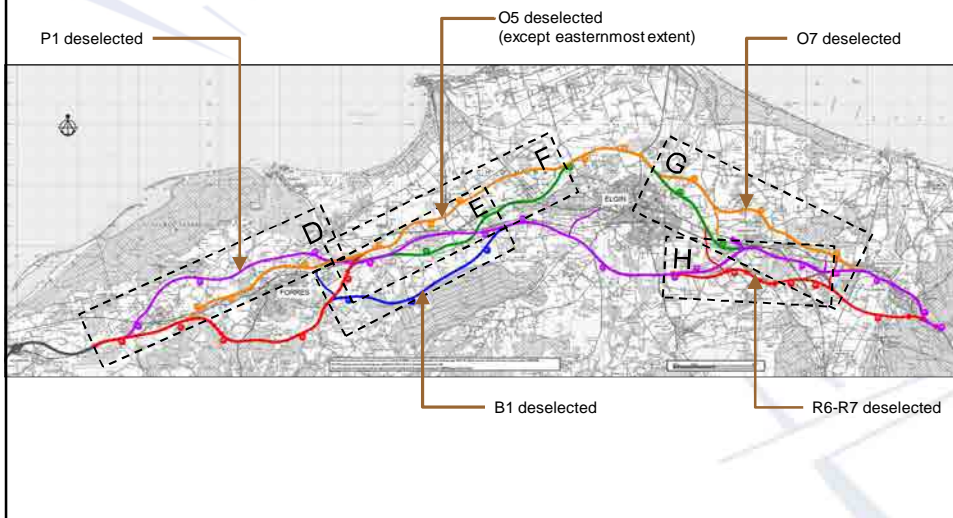


- Design development of options informed by consultation feedback
- Two pairwise comparison processes used to work towards shortlist of options
- Shortlisted options performance measured against Government objectives
- All assessments based on DMRB guidance covering:
 - engineering aspects;
 - traffic operation;
 - economic performance; and
 - environmental impacts.

Pairwise Round 1

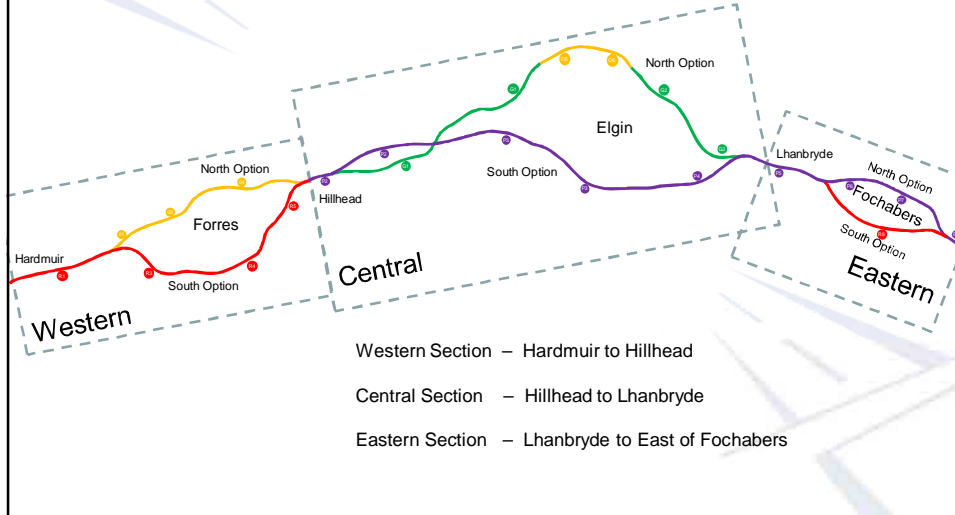


Pairwise Round 2



Shortlisted Options Assessment

A96
DUALLING
HARDMUIR TO FOCHABERS



Assessment Framework – Introduction

A96
DUALLING
HARDMUIR TO FOCHABERS



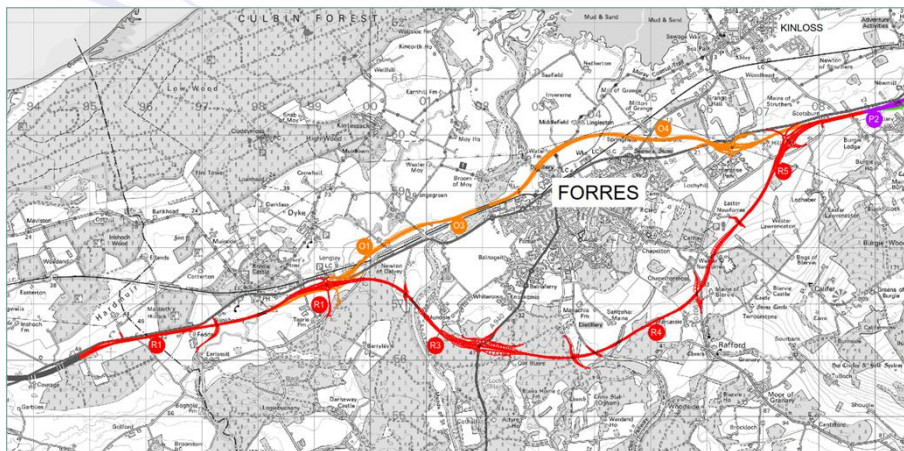
Main Criteria/Government Policy	Sub-Criteria/Scheme Objectives	Weighting	Comments
Economy	Improve operation of A96	10	Journey Time Savings on A96
	Provide opportunities to grow regional economy	10	Based on number of employment trips within 5km of Scheme junctions
	Economy sub-total	20	
Safety	Reduce accident rates and severity	10	Based on casualty reduction over 60 years
	Reduced non-motorised user conflicts	10	Reduction in traffic on detrunked A96 at locations where NMUs cross
	Safety sub-total	20	
Environment	Policies & Plans	0.5	Output assessed from Stage 2 Summary - 2015 LDP & Planning applications up to 31/08/18
	Air Quality	0.5	Output assessed from Stage 2 Summary
	Noise & Vibration	2	Output assessed from Stage 2 Summary
	People & Communities	2	Output assessed from Stage 2 Summary
	Agriculture	2	Output assessed from Stage 2 Summary
	Materials	1	Quantitative and weighted approach to concrete, steel, pavement and earthworks
	Visual Effects	2	Output assessed from Stage 2 Summary
	Cultural Heritage	2	Output assessed from Stage 2 Summary
	Landscape	2	Output assessed from Stage 2 Summary
	Nature Conservation	2	Output assessed from Stage 2 Summary
	Geology, Soils, Contaminated Land and Groundwater	2	Output assessed from Stage 2 Summary
Road Drainage and Water Environment	2	Output assessed from Stage 2 Summary	
	Environment sub-total	20	
Accessibility	To facilitate active travel in the corridor	20	Opportunity to improve connections between communities
	Accessibility sub-total	20	
Integration	To facilitate integration with Public Transport facilities	10	Based on reduction in traffic at rail stations and key bus stops
	Policies & Plans	10	A qualitative assessment of strategic development opportunities and integration with wider land use served by A96 corridor, including effect on sites in Main Issues Report for 2020 LDP
	Integration sub-total	20	
Others	Promotability through the statutory process	7	Review of 'Performance' & 'Reputation' risk impact type categories
	Minimise disruption during construction	7	Complex interfaces with existing network, railways & rivers: consideration of online construction
	Facilitate operational resilience	6	Resilience of existing network to closure of new dualled A96 links
	Other sub-total	20	

Session 1

Western Section

Hardmuir to Hillhead

Hardmuir to Hillhead Options



Economy

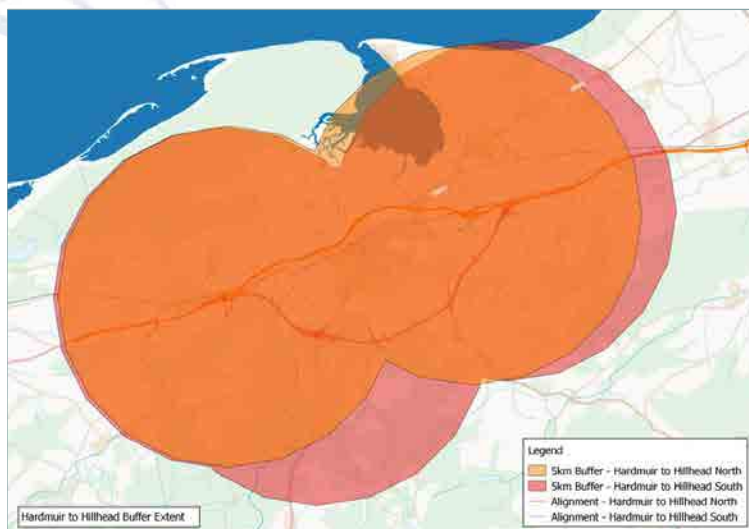
Journey Time Savings (AM in 2045)



Direction	DM 2045	North Option 2045	South Option 2045
	Existing A96	New A96	New A96
Hardmuir to Hillhead	14:10	09:10	10:00
Hillhead to Hardmuir	12:50	09:00	10:20
Averaged between directions	13:30	09:05	10:10
Averaged journey time saving		04:25	03:20

Regional Economy

Access to Employment from New Junctions



Safety

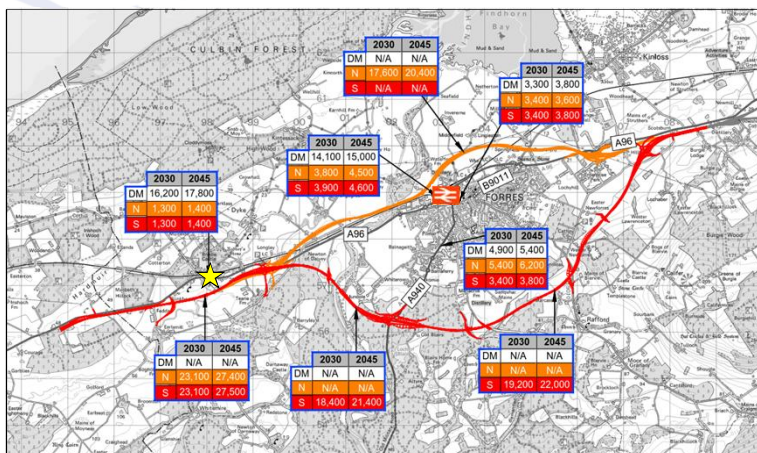
Reduced Accidents and Severity



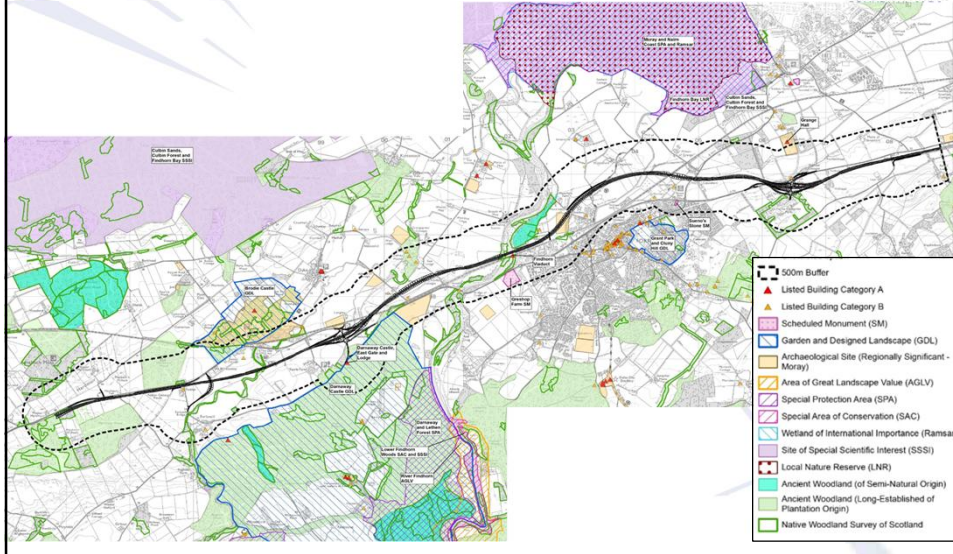
Accident Reductions over 60 years	Hardmuir to Hillhead North Option (with assumed Central south option & Eastern south option)	Hardmuir to Hillhead South Option (with assumed Central south option & Eastern south option)	Difference between Hardmuir to Hillhead North & South Options
Fatal	46	46	-
Serious	420	411	9
Slight	3058	2936	123

Safety

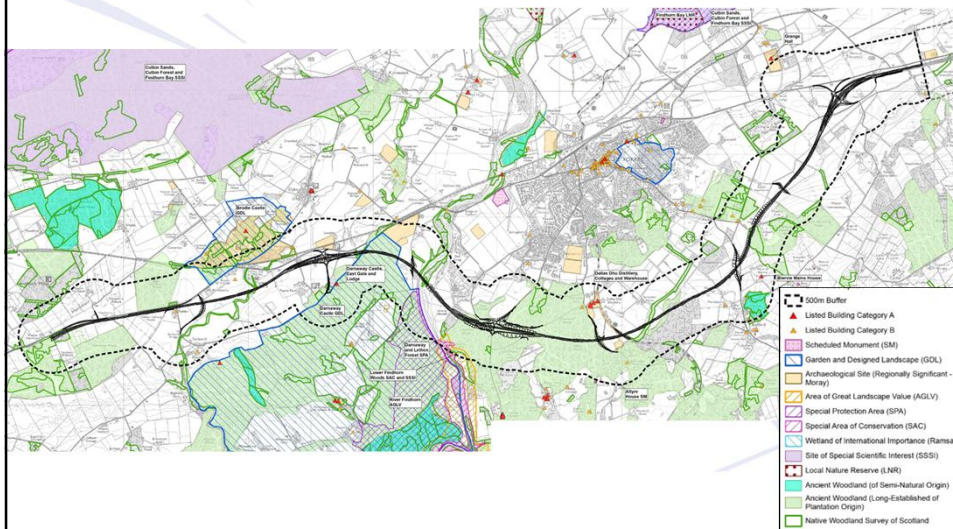
Reduced Non-Motorised User Conflicts



Constraints North Option



Constraints South Option

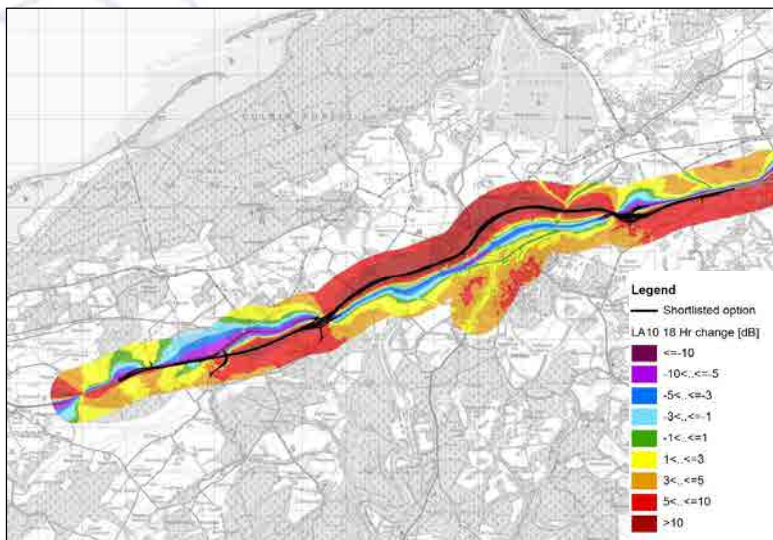


Environment – Key Issues

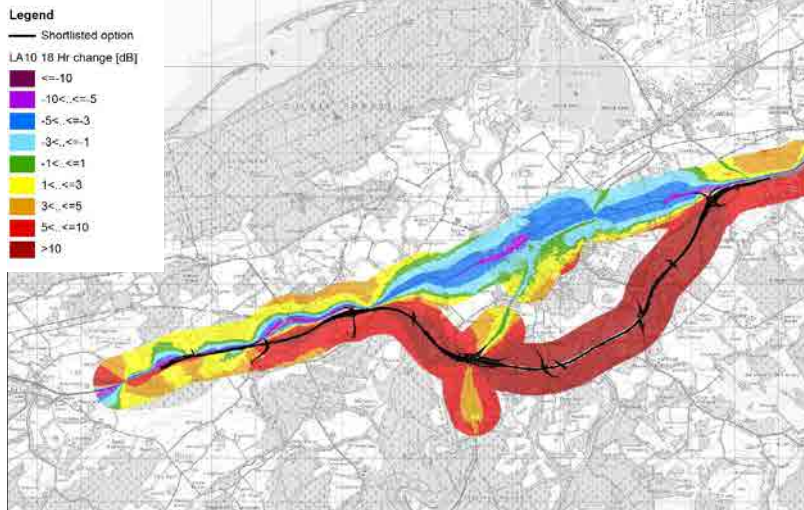


Criteria	Key Issue
Noise and Vibration	<ul style="list-style-type: none"> Approx. 580 more receptors with net major adverse impacts for North option
People and Communities	<ul style="list-style-type: none"> South option affects more NMU routes and has greater loss of woodland used by community
Visual Effects	<ul style="list-style-type: none"> Major adverse effects overall for South option compared with moderate adverse for North option
Cultural Heritage	<ul style="list-style-type: none"> North option predicted to have more adverse setting effects on listed buildings
Landscape	<ul style="list-style-type: none"> Greater overall adverse effects on rural landscape for south option. North option relates more closely to existing infrastructure corridor
Nature Conservation	<ul style="list-style-type: none"> South option affects larger area of ancient woodland and greater potential for disturbance of capercaillie (associated with SPA)

Noise Modelling - North Option



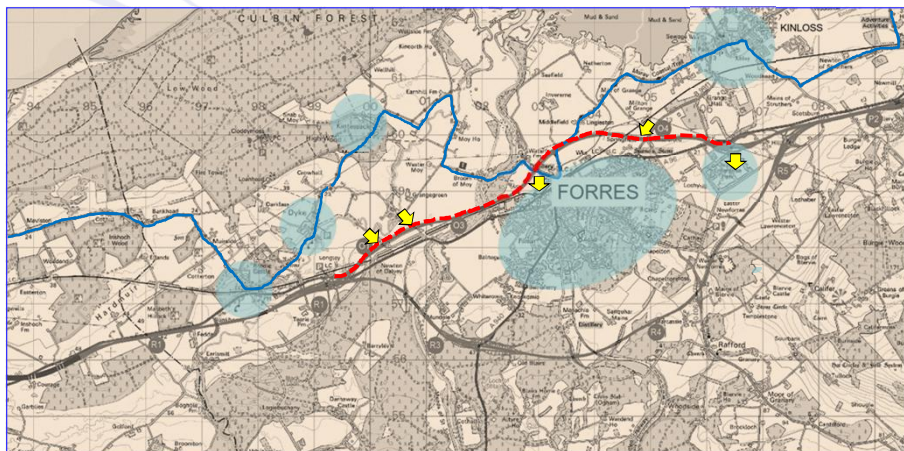
Noise Modelling - South Option



Accessibility to facilitate active travel



— existing NCN route - - - opportunity for new route

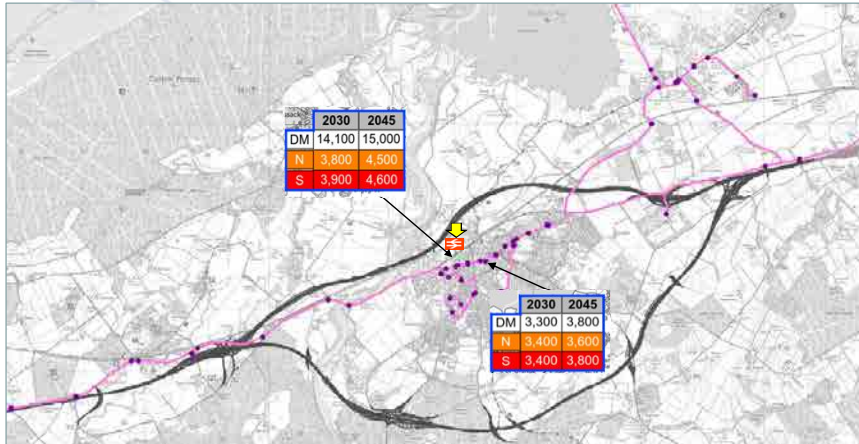


Integration

Facilitate integration with Public Transport

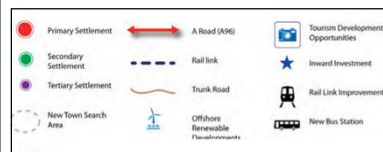


bus routes / bus stops



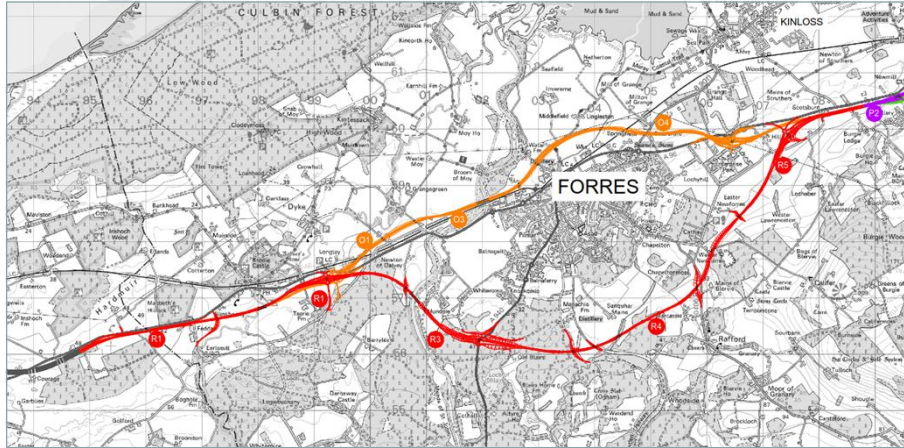
Integration

Policies and Plans
(strategic development opportunities)



Source:
Moray Local Development Plan 2020
Main Issues Report, December 2017

Promotability, Constructability, Resilience

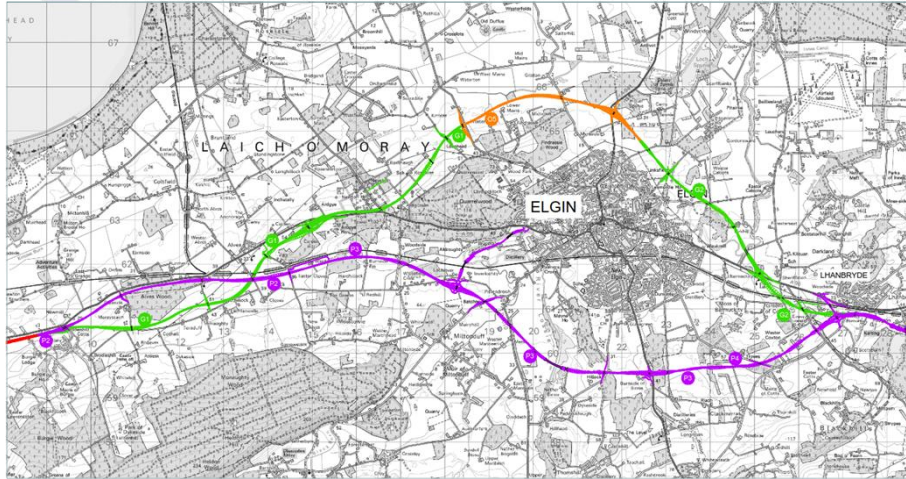


Session 2 Central Section Hillhead to Lhanbryde



Hillhead to Lhanbryde

A96
DUALLING
HARDWARE TO FUCHABERS



Economy Journey Time Savings (AM in 2045)

A96
DUALLING
HARDWARE TO FUCHABERS

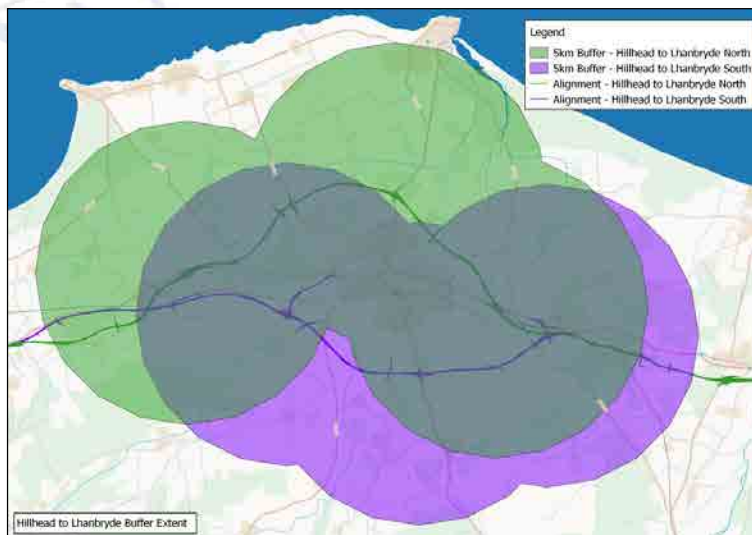


Direction	DM 2045	North Option 2045	South Option 2045
	Existing A96	New A96	New A96
Hillhead to Lhanbryde	25:30	13:30	12:00
Lhanbryde to Hillhead	24:40	13:20	11:50
Averaged between directions	25:05	13:25	11:55
Averaged journey time saving		11:40	13:10

Regional Economy

Access to Employment from New Junctions

A95
DUALLING
HARDWARE TO FUCHIBERS



Safety

Reduced Accidents and Severity

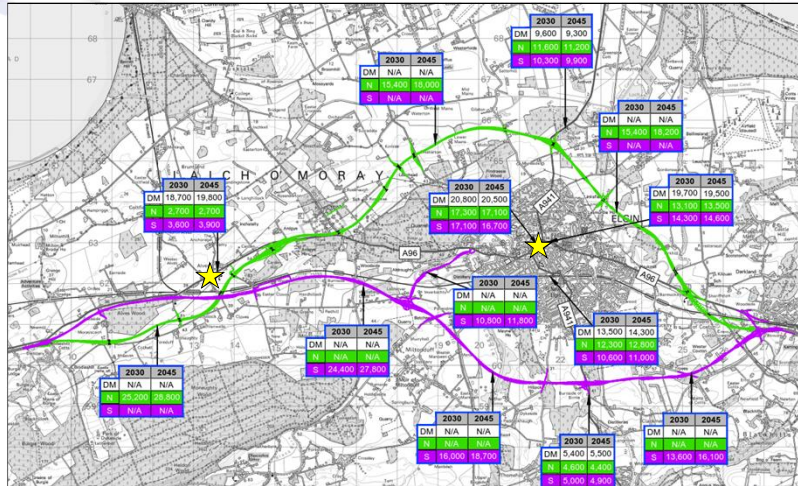
A95
DUALLING
HARDWARE TO FUCHIBERS



Accident Reductions over 60 years	Hillhead to Lhanbryde North Option (with assumed Western south option & Eastern north option)	Hillhead to Lhanbryde South Option (with assumed Western south option & Eastern north option)	Difference between Hillhead to Lhanbryde North & South Options
Fatal	46	47	1
Serious	403	418	15
Slight	2835	2971	135

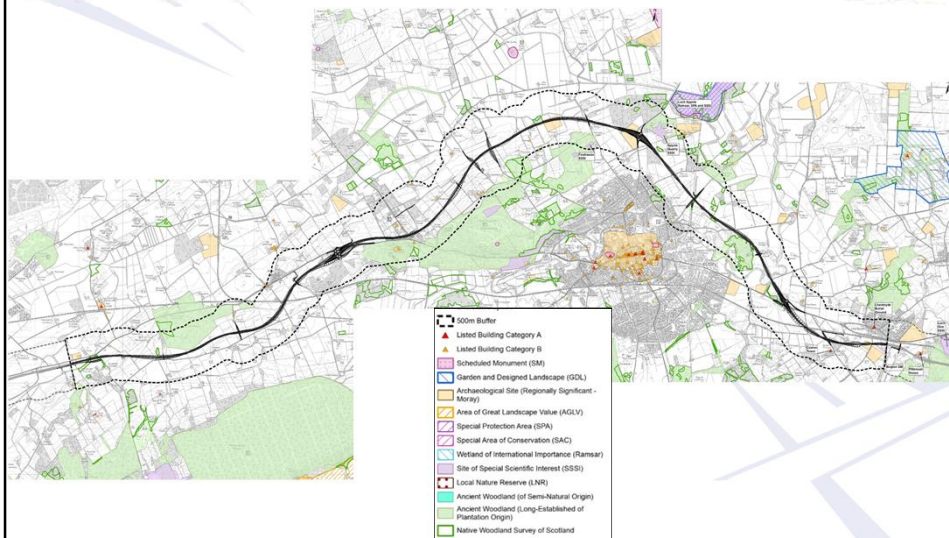
Safety

Reduced Non-Motorised User Conflicts



Constraints

North Option



Constraints

South Option



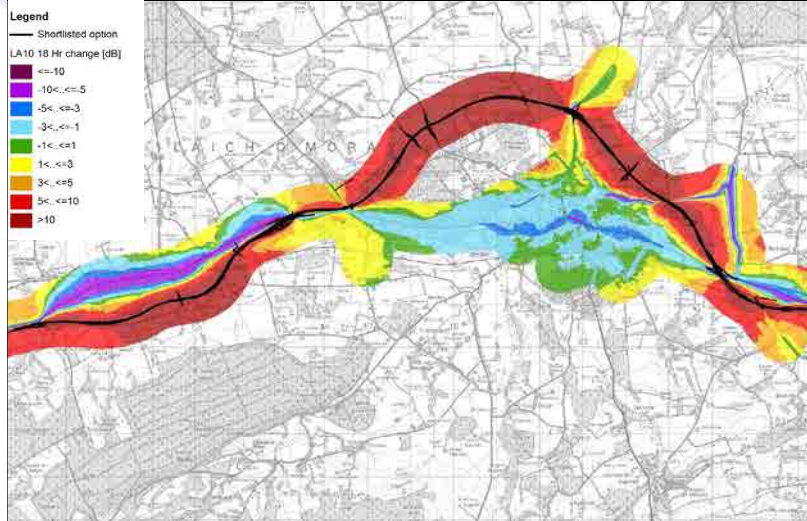
Environment – Key Issues



Criteria	Key Issue
Noise and Vibration	<ul style="list-style-type: none"> Approx. 210 more receptors with net major adverse impacts for North option
Agriculture, Forestry and Sporting	<ul style="list-style-type: none"> South option requires significantly less prime land and has major adverse effect on one fewer land holding
Visual Effects	<ul style="list-style-type: none"> Major adverse effects for both options but South judged to have fewer adverse effects
Cultural Heritage	<ul style="list-style-type: none"> South option has greater effect on Category A listed Coxtan Tower and affects four more archaeological sites of regional importance
Landscape	<ul style="list-style-type: none"> South option has fewer significant effects on LLCAs and generally relates better to landscape in the western and eastern sections
Nature Conservation	<ul style="list-style-type: none"> South option affects larger area of ancient woodland and greater potential for disturbance of ponds and habitats at restored Cloddach Quarry

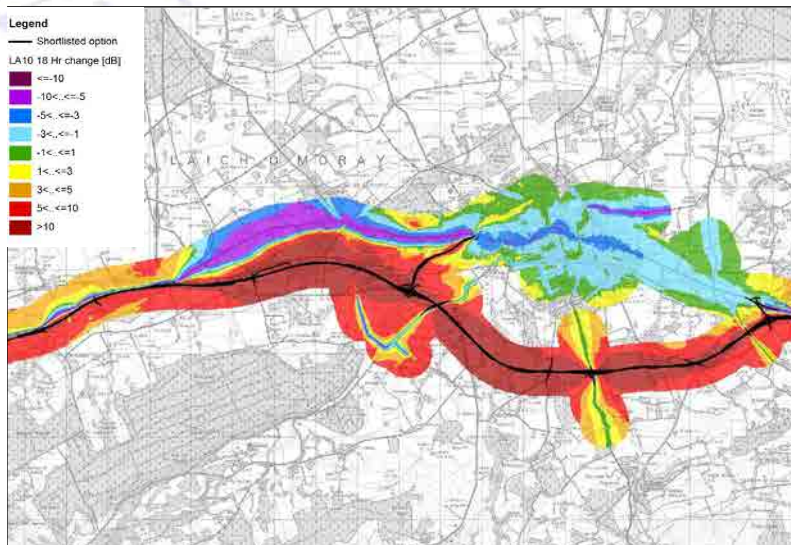
Noise Modelling - North Option

A95
DUALLING
HARDMUR TO FOCHABERS



Noise Modelling - South Option

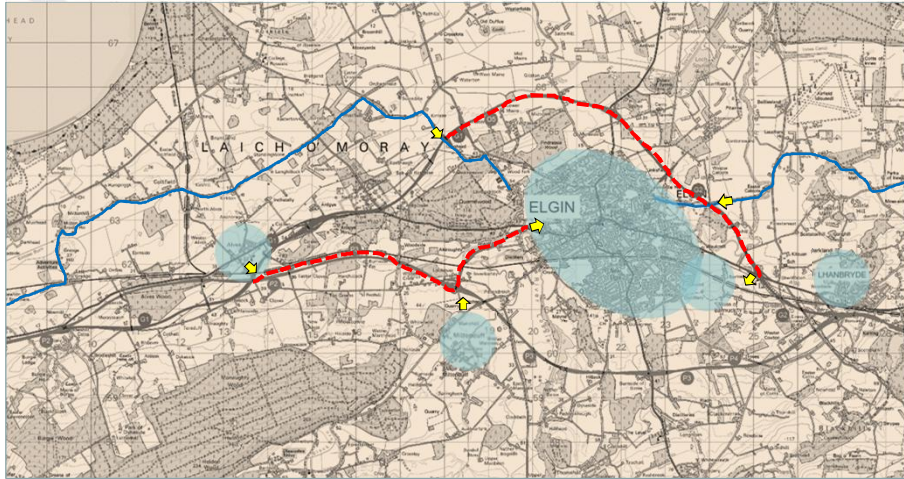
A95
DUALLING
HARDMUR TO FOCHABERS



Accessibility to facilitate active travel



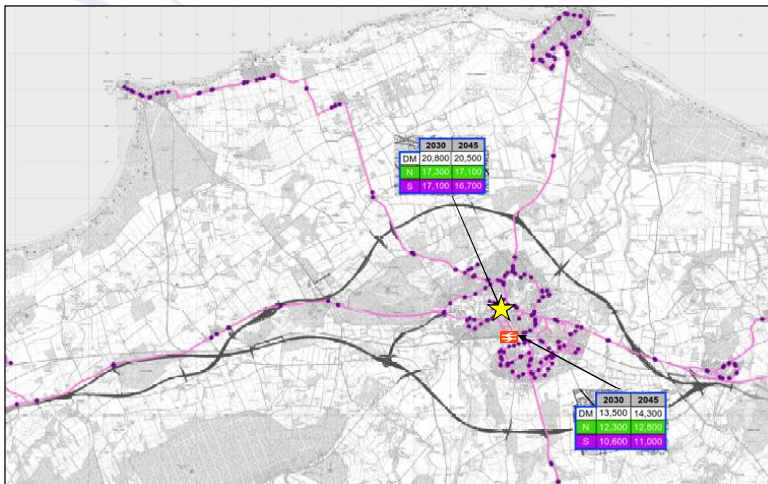
— existing NCN route - - - opportunity for new route



Integration Facilitate integration with Public Transport

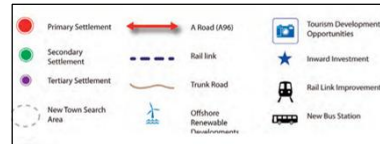


● bus routes / bus stops



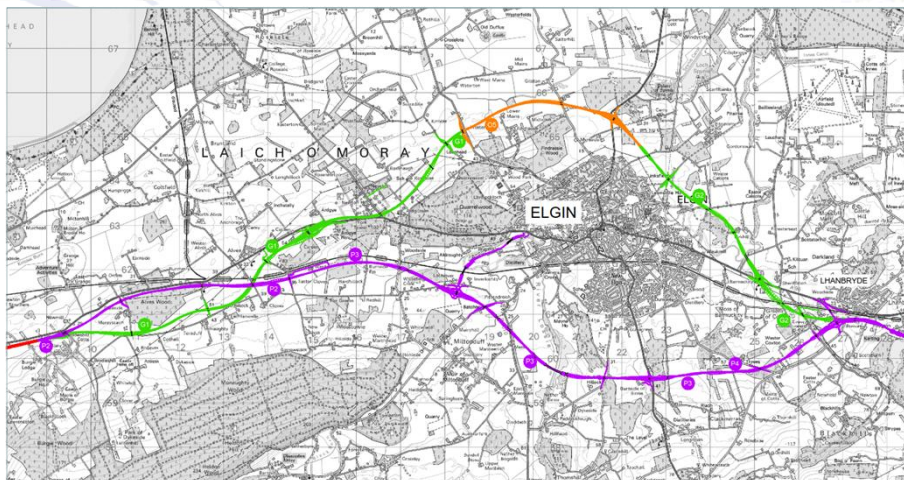
Integration

Policies and Plans (strategic development opportunities)



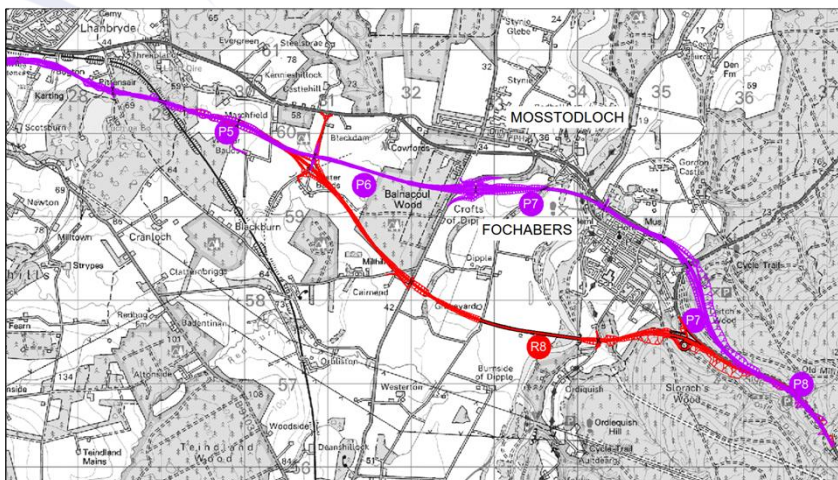
Source:
Moray Local Development Plan 2020
Main Issues Report, December 2017

Promotability, Constructability, Resilience



Session 3 Eastern Section Lhanbryde to East of Fochabers

Lhanbryde to East of Fochabers



Economy

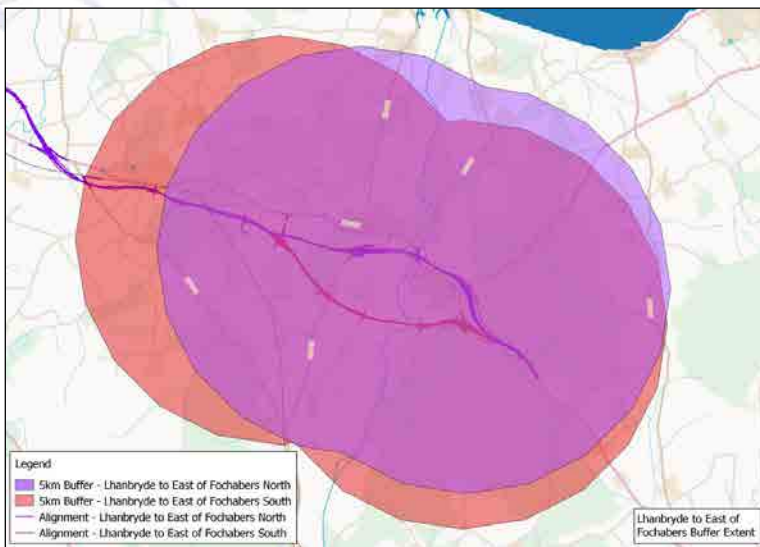
Journey Time Savings (AM in 2045)



Direction	DM 2045	North Option 2045	South Option 2045
	Existing A96	New A96	New A96
Lhanbryde to East of Fochabers	10:20	06:20	06:20
East of Fochabers to Lhanbryde	11:20	06:20	06:20
Averaged between directions	10:50	06:20	06:20
Averaged journey time saving		04:30	04:30

Regional Economy

Access to Employment from New Junctions



Safety

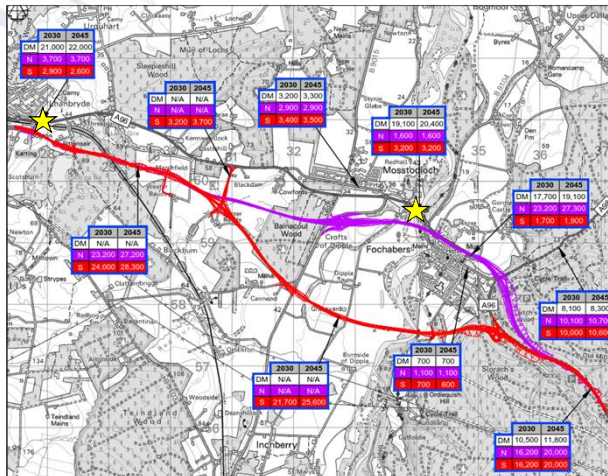
Reduced Accidents and Severity



Accident Reductions over 60 years	Lhanbryde to East of Fochabers North Option (with assumed Central south option & Eastern south option)	Lhanbryde to East of Fochabers South Option (with assumed Central south option & Eastern south option)	Difference between Lhanbryde to East of Fochabers North & South Options
Fatal	44	45	1
Serious	409	412	3
Slight	2943	2956	13

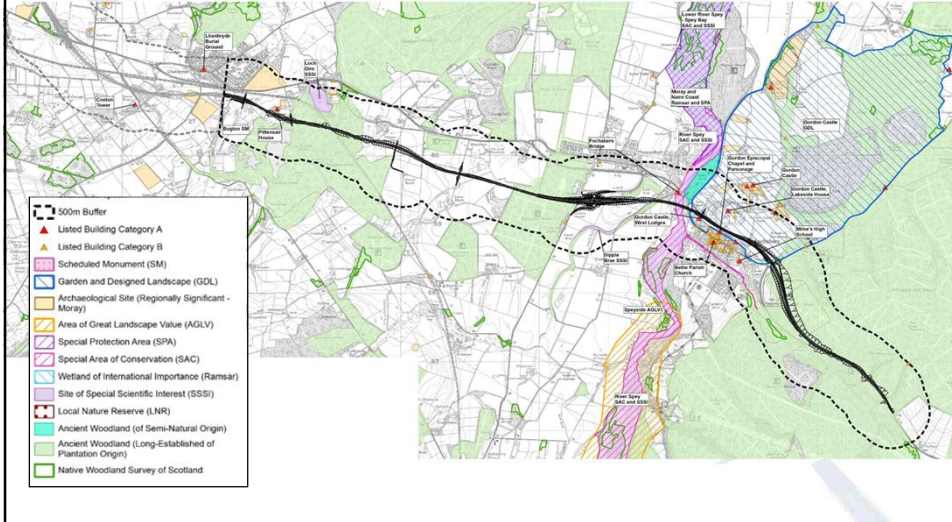
Safety

Reduced Non-Motorised User Conflicts



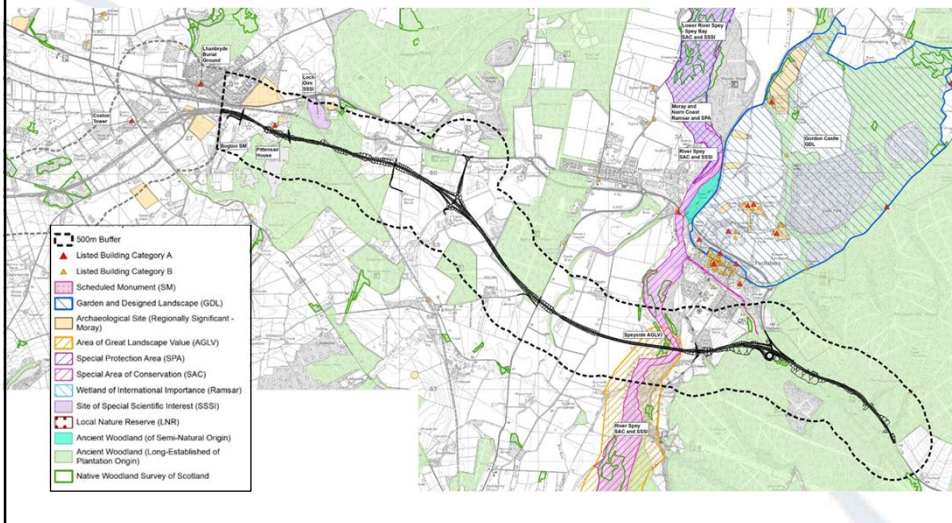
Constraints North Option

A95
DUALLING
HARDWARE TO FOCHABERS



Constraints South Option

A95
DUALLING
HARDWARE TO FOCHABERS

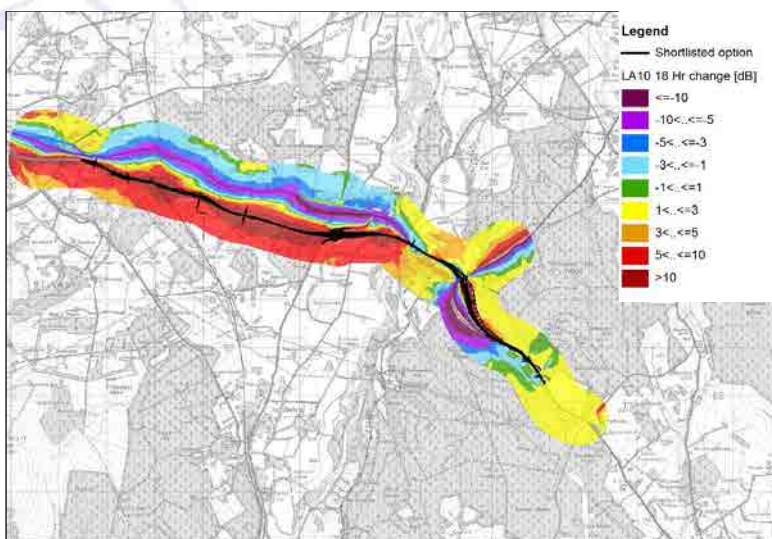


Environment – Key Issues

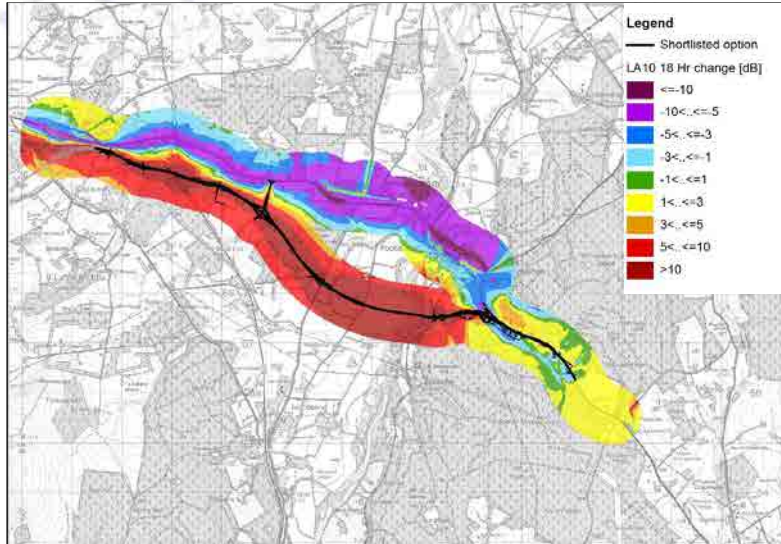


Criteria	Key Issue
Noise and Vibration	<ul style="list-style-type: none"> Approx. 400 more receptors with net major beneficial impacts for South option
People & Communities	<ul style="list-style-type: none"> North option affects more NMU routes/trails including severed link between woodlands east of Fochabers
Cultural Heritage	<ul style="list-style-type: none"> North option significantly affects setting of Gordon Castle GDL and A listed West Gate Lodge
Landscape	<ul style="list-style-type: none"> South option follows a simple and spatially separate line avoiding sensitive landscape of Gordon Castle estate and less prominent cut into wooded hillside east of Fochabers
Geology, Soils, Contaminated Land & Groundwater	<ul style="list-style-type: none"> South option crosses central part of Spey water abstraction scheme with higher risk of adverse effects and more mitigation
Road Drainage and the Water Environment	<ul style="list-style-type: none"> South option crosses River Spey on actively eroding meander bend

Noise Modelling - North Option



Noise Modelling - South Option

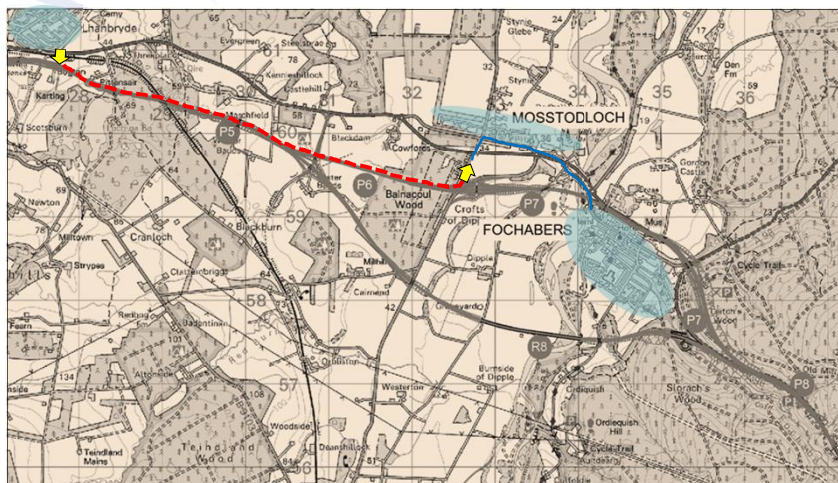


Accessibility to facilitate active travel



— existing cycle route

- - - opportunity for new route

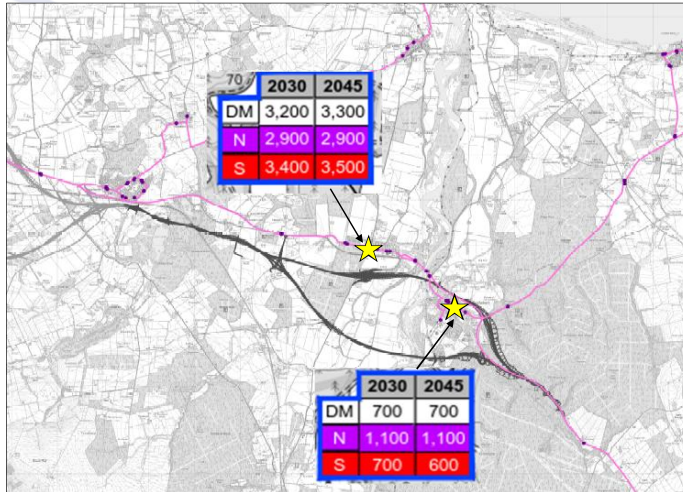


Integration

Facilitate integration with Public Transport

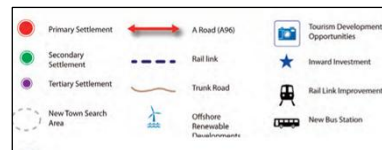


bus routes / bus stops



Integration

Policies and Plans
(strategic development opportunities)



Source:
Moray Local Development Plan 2020
Main Issues Report, December 2017

Promotability, Constructability, Resilience

