West Lothian Main Issues Report
Delivery of M9 Slip Roads

WALLACE LAND INVESTMENT + MANAGEMENT

Question 31 of the Main Issues Report (MIR) relates to the future safeguarding of west facing slip roads at Junction 3 of the M9 at Linlithgow, and whether development should be promoted in Linlithgow to secure funding for the delivery of the slips.

SESplan Policy 9(a) states that LDPs will ...*Safeguard land to accommodate the necessary infrastructure required to deliver the Strategic Development Plan as set out on Figure 2 and in the accompanying Action Programme*.

SESplan Action Programme …*addresses the 'how', the 'when' and 'by whom' for delivering the requirements of the SDP* (SESplan Action Programme, paragraph 1.1).

Action 91 is the delivery of ...*new west facing slips at existing junction on the M9* (Junction 3, Linlithgow). The timescale for this action is 2019-2024 and the lead partners are identified as the developer and Transport Scotland.

Delivery of the west facing slip roads at Junction 3 of the M9 is therefore an action required by SESplan. The Council has no remit to use the LDP process to promote change from this strategic requirement – this is a SESplan matter.

It is known that air quality in Linlithgow town centre is of concern for the Council. The Council has been monitoring air quality in the town centre and reports that air quality guidelines are being breached. The Council reported in response to an ongoing Planning Appeal (PPA-400-2046) in October 2014 that the ...*problems are principally associated with high volumes of stop-start traffic in the High Street, which in most cases has no alternative practical east – west route*.

Accordingly, the Council anticipates that an Air Quality Management Area (AQMA) will be declared for Nitrogen Dioxide and possibly also PM10 early in 2015. If an AQMA is declared there is a statutory process to be followed to develop and agree prioritised measures to improve air quality.

The Council has allocated land for the delivery of the motorway slip in the adopted Local Plan. This is Council's preferred solution to deal with traffic congestion in the High Street.

Wallace Land's proposal for land at Burghmuir, if allocated in the Proposed Plan, will deliver the west facing slip roads at Junction 3 of the M9. Wallace Land has already secured approval from Falkirk Council and Transport Scotland for these slip roads.

Focusing the allocation of the majority of the 580 homes proposed for Linlithgow at Burghmuir will ensure that these slip roads are delivered. The proposal for the slip roads is illustrated on the attached plan.

Wallace Land has commissioned a Traffic Impact Assessment for the proposal which includes assessment of the new west facing slip roads. An extract relating to the delivery of the motorway slips is attached.

The addition of the new slips at Junction 3 allows traffic originating or terminating to the east of Linlithgow to enter or exit the trunk road network without the need to travel through the centre of Linlithgow and then on to Junction 4. This relieves the current operational difficulties at Junction 4 caused by queuing traffic originating from Linlithgow and stop-start traffic congestion in the High Street.

With the slips in place, the High Street is expected to experience initial reductions in traffic flows of around 25% when the slips are first delivered. These slips will contribute significantly to an improvement in air quality in Linlithgow town centre by reducing traffic flows, delay and pollution.

The ongoing safeguarding of land for the delivery of the west facing slips at Junction 3 of the M9 in the Proposed Plan is essential. This is necessary to accord with the requirements of SESplan Action Programme, and SESplan Policy 9(a).

The Council's proposed development strategy in the MIR fails to address the delivery of this necessary infrastructure requirement, as required by SESplan, to allow Linlithgow to accommodate the scale of development proposed in the MIR.

It is not possible for the Council to deliver these motorway slip roads without the direct involvement of Wallace Land and the allocation of the site at Burghmuir.

The allocation of Burghmuir for around 600 homes will ensure that the slip roads are delivered. Only the allocation of Burghmuir in the Proposed Plan will deliver the motorway slips.

the need to travel through the centre of Linlithgow and then on to Junction 4. Junctions 5 and 6 appear to experience little change as a result of the new slip roads.

Linlithgow High Street is expected to experience initial reductions in traffic flows of around 25% when the slips are first delivered, with a longer term reduction of around 10% in both the morning and evening peaks when the proposed development is fully complete. This is beneficial for the town centre both in terms of reduced traffic volumes and improvements to air quality.

Improving air quality in sensitive areas, such as Linlithgow town centre, is a national and EU priority, with failure to reach mandatory targets resulting in substantial fines. It is thought that the provision of the new slip roads at Junction 3 will contribute significantly to an improvement in air quality in Linlithgow town centre by reducing traffic flows, delay and pollution.

The reduction in traffic flow and delay expected in Linlithgow and at Junction 4 is as a result of traffic shifting from the constrained local road network to the trunk road network where there is capacity. This is traffic which was bound for the trunk road in any case, but which is now provided with an opportunity to reach the network in a more efficient manner. A reduction in delay in Linlithgow and at Junction 4 would represent a positive economic impact. The redistribution of traffic to Junction 3 and part of the trunk road network where capacity exists is thought to represent at worst a neutral impact but potentially a positive impact when considered in tandem with the benefits expected at Junction 4 on the M9. These aspects and all other requirements will be considered in a detailed economic assessment as the scheme moves forward. This will also take account of the fact WL intend to fund the construction of the slip roads, resulting in zero capital cost for the Government, WLC and FC.

7.3 Local Impact of Development Proposals

This section discusses the methodology used to quantify the impact of traffic associated with the development proposals on the local road network, including junctions on the A803 proposed as part of the new slip roads.

7.3.1 Baseline traffic levels

To determine existing traffic levels on the surrounding local road network, classified junction turning counts and queue length surveys were undertaken by Sky High Traffic Surveys Ltd on Wednesday 22nd June between 0700 to 1000 and 1600 to 1900 and on Saturday 25th June between 1100 to 1530 for the junctions included within the scope of assessment. The traffic counts identified the following peak periods for the local road network:

- Morning peak 0745 - 0845;
- Evening peak 1715 - 1815; and
- Saturday peak 1300 - 1400.

The 2011 base peak hour turning movements are shown in Figure 7.1 to 7.3 in Appendix F.

Existing traffic levels on the M9 in the vicinity of Junction 3 were provided by Transport Scotland (TS) and extracted from an Automatic Traffic Count (ATC) located to the east of Junction 3 for

the base case. It was agreed with TS that average peak hour flows for a neutral month (May 2011) would best represent flows on the M9 at Junction 3.

7.3.2 Future year traffic flows

In order to factor the surveyed traffic data to the proposed year of completion of 2023, National Road Traffic Forecast (NRTF) low growth rates were applied to all local traffic movements for the future year assessment with flows extracted from the SATURN model to inform the M9 movements. The appropriate growth rate use for the local traffic is shown in Table 9.

Table 9: NTRF growth factors

Growth rate	Base year	Future year	Growth factor
Low growth	2011	2023	1.112

7.3.3 Scope of assessment

The extent of the road network to be considered within the traffic impact assessment was agreed with both WLC and TS. The junctions considered were:

- New junctions between the A803 and the M9 Junction 3 slip roads;
- Capacity of the merge and diverges on the M9 Junction 3 slip roads;
- A803 / Unnamed Road linking to B9080 priority junction;
- A803 / Site access junctions;
- A803 / Springfield Road mini roundabout; and
- A803 / High Street / High Port roundabout.

7.3.4 Committed development

There were no committed developments highlighted by WLC to be included in the traffic impact assessment. As part of the capacity assessments, a sensitivity analysis was undertaken on the proposed site access junctions and the new M9 slip roads to confirm that traffic associated with the adjacent allocated employment sites (EL12 and EL18) within the Local Plan could be accommodated. As the traffic flows associated with the employment land would be negligible at the weekend, only the weekday morning and evening peak periods were analysed within the sensitivity test.

7.3.5 Assessment scenarios

In order to assess the operation of the road network in relation to the proposals, the impact was tested for a future year of 2023. The scenarios considered within the traffic impact assessment for the morning, evening and Saturday peak periods were:

- 2023 base (with west facing slip roads constructed and operational);
- 2023 base + development traffic flows; and
- 2023 base + development traffic flows + Sensitivity analysis (weekday morning and evening peak only).

Traffic flow diagrams for all scenarios are provided in Figures 7.4 to 7.11 in Appendix F.

7.3.6 Adjusted base flows

To take account of the existing traffic movements which would divert onto the new west facing slip roads, the base traffic counts undertaken in June 2011 were adjusted. Base traffic flows with and without the proposed slip roads were extracted from the SEStran Regional SATURN model. It can be seen from this comparison that there is a reduction in traffic flow predicted in the Town Centre (as previously discussed), however due to the re-routing of trips to the est of the town to use the new slip roads there is an increase in background traffic levels to the east on Blackness Road.

It was also evident from the SATURN model that trips to and from Bo'ness and Junction 2 of the M9 would divert onto the new slip roads and local road network. This re-routing was also taken into account within the adjusted base flows.

It was also assumed that a proportion of traffic associated with Sun Microsystems, a major employer in the east of Linlithgow, would divert and use the new west facing slip roads. As there were no traffic counts undertaken at the Sun Microsystems access points, vehicle trip rates were extracted from the TRICS database for a large industrial unit based on the number of employees (at the time of writing, it is estimated that there are 660 employees) with the traffic flows distributed as per the adjusted base flows from the SATURN model.

7.3.7 Assessment methodology

Analysis of the performance of the priority and roundabout junctions utilised the Transport Research Laboratory software PICADY 5 and ARCDAY 6 respectively. The results of the analysis are presented in terms of maximum Ratio of Flow to Capacity (RFC) with corresponding vehicle queues (MMQ).

The analysis of the performance of the signalised junction was undertaken using the JCT Consultancy Ltd software LinSig v.2, with the results of the analysis presented in terms of percentage degree of saturation (DoS%) with the corresponding predicted mean maximum queue (MMQ). The Practical Reserve Capacity (PRC) is also presented within the results. The PRC is calculated from the maximum degree of saturation on a link and is a measure of how much additional traffic could pass through the junction while maintaining a maximum degree of saturation of 90% on all links.

A site visit was undertaken in July 2011 and measurements recorded at the junctions within the scope of the assessment to confirm the accuracy of the geometry used in the traffic models. The base traffic models were calibrated by comparing the queuing extracted from the models at each junction against the results of existing queuing recorded during the traffic surveys.

7.3.8 Junction Assessment results

The results of the traffic impact assessment show that the traffic generated by the development will have no material impact on the operation of any of the junctions tested for all scenarios. The detailed results of the assessments are shown in Tables I.1 to I.27 in Appendix I. In particular Tables I.22 to I.27 indicate that the preliminary designs for the slip roads are predicted to

operate within capacity when traffic generated from the development is added and distributed through the network.

7.3.9 Blackness Road

As a result of the new west facing slip roads, it is predicted that the routing for some existing traffic on Blackness Road would shift, for example traffic currently travelling on Blackness Road towards the town centre to access the M9 would re-route towards the new west facing slip roads. This re-routing would result in an overall traffic reduction through Linlithgow Town Centre and an increase in traffic levels on Blackness Road to the east of Springfield Road. As a result of the slip roads the predicted increase in two-way traffic volumes on Blackness Road to the east of the Masterplan would be 195 in the morning peak and 83 in the evening peak, which reflects the reduction in traffic to the west of M9 Junction 3.

To the north of M9 Junction 3, there is a predicted increase in traffic on the section of Blackness Road between the proposed new slips and the A803 / A804 priority junction. This is a result of traffic that previously exited the M9 via Junction 2 now exiting via the new slip road at Junction 3, with an increase of 250 two-way vehicle trips in the morning peak and 66 in the evening peak.

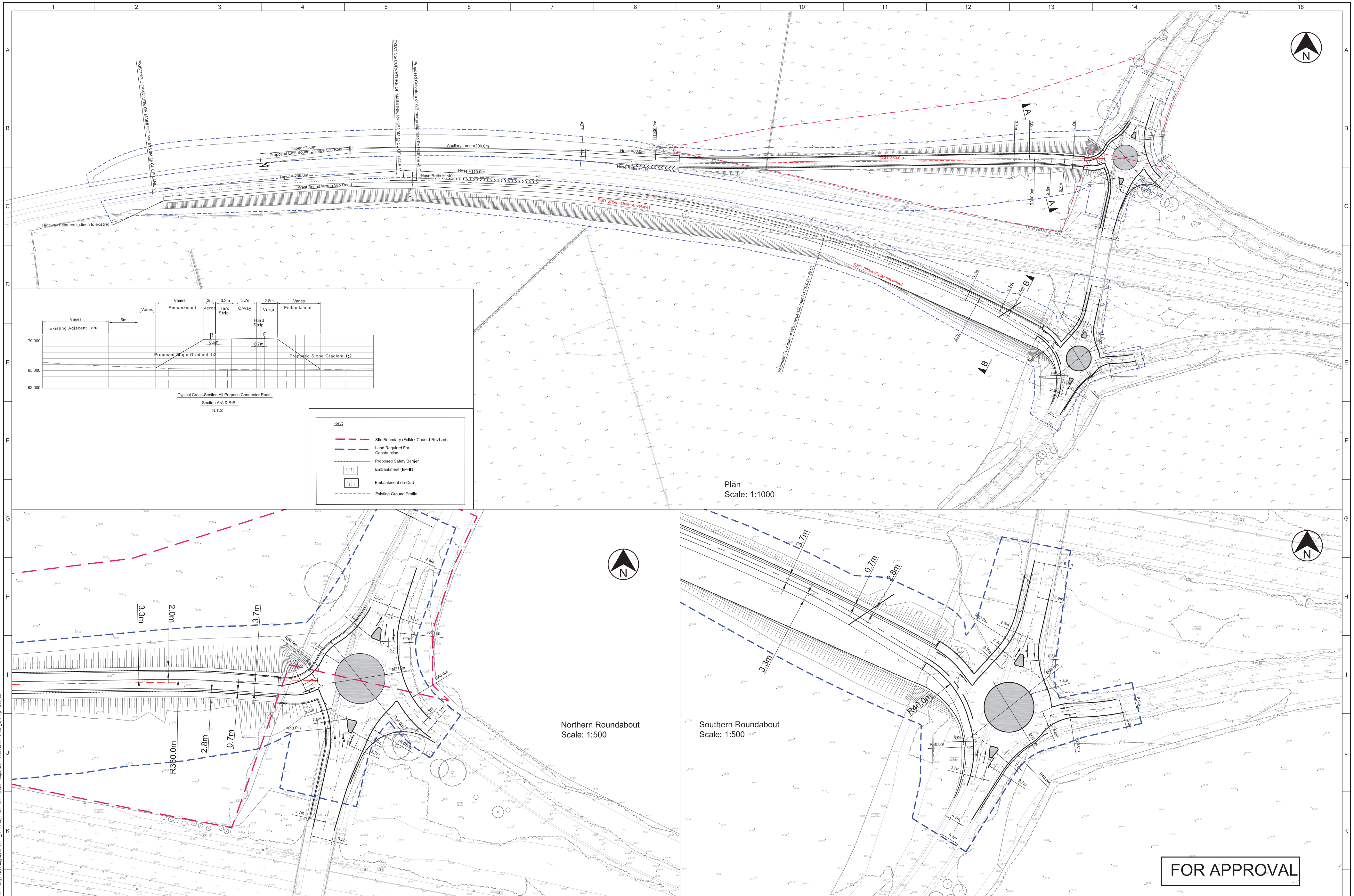
Once the Masterplan is fully developed, the additional two-way traffic associated with the development taking account of the effect of the new slip roads would be 510 additional two-way trips in the morning peak and 398 in the evening peak trips to the south of the junction on Blackness Road. To the north of Junction 3 the corresponding increases are 423 in the morning peak and 221 in the evening peak.

The traffic impact assessment undertaken within this study confirms that these changes to traffic patterns will not have a detrimental impact on the operation of Blackness Road.

7.3.10 Merge / diverge calculations

Merge/diverge calculations have been undertaken for the morning and evening peak periods at the proposed west facing slip roads for the worst case traffic scenario.

The results show that the preliminary design of the west facing slip roads as shown in Appendix B will be able cater for the traffic predictions with the development proposals.



FOR APPROVAL

REV	DATE	DRAWN	REV'D	APP'D	REVISION
G	06/12	HAA	CC	CC	Mainline curvatures for WB merge denoted as shown.
F	06/12	HAA	SAC	SAC	WB Merge Nose Relocated as requested by TFS 10/07
E	06/12	HAA	SAC	SAC	WB Merge Nose Relocated East to Improve visibility
D	05/12	HAA	SAC	SAC	Verge, Slope,SSD Shown on merge amended
C	05/12	HAA	SAC	SAC	Verge, Slope,SSD Shown on Merge
B	01/12	HAA	SAC	SAC	Following Transport Scotland's Review

REV	DATE	DRAWN	REV'D	APP'D	REVISION
G	06/12	HAA	CC	CC	Application boundary revised

DRAWING NUMBER	REFERENCE DRAWING TITLE

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DRAWN	DRAWING CHECK	REVIEWED	APPROVED
HAA	SAC		SAC
DESIGNED: HAA	DESIGN REVIEW: SAC	DATE: May'12	DATE

TITLE: PLAN AND TYPICAL CROSS-SECTION

SCALE	DRAWING No	REV
SHOWN@A0	202012-OT-1000	G

A0

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LOCATION: I:\CBP Data\CB Jobs\20201-02-X-Burghmuir,Linlithgow\20201...