West Lothian Council

Planning Services
Development Planning & Environment

SG supplementary GUIDANCE

SUPPLEMENTARY GUIDANCE (SG)

Developer **Contributions Towards** **Transport** Infrastructure

Approved by Council Executive 23 June & 17 November 2020

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Introduction

1.1 The West Lothian Local Development Plan (LDP) was adopted by the council on 4 September 2018. The LDP sets the pattern of development for West Lothian over the period 2014 – 2024 but also provides for longer term growth beyond this period. Developer contributions towards transport infrastructure will be required to support delivery of development set out in the LDP.

1.2 This Supplementary Guidance (SG) supersedes all previous Supplementary Planning Guidance (SPG) relating to developer contributions towards transport infrastructure and covers requirements for developer contributions towards transport infrastructure set out in the West Lothian Local Development Plan (LDP). The SG should be read in conjunction with SG on *Air Quality* and SG *General Infrastructure*.

1.3 The council will work with developers and interested parties to deliver the development strategy set out in the West Lothian LDP and provide guidance on the levels of contributions required for a development proposal through the pre-application process.

1.4 This SG will not be applied retrospectively to sites which already have planning permission in principle or to applications for the approval of matters specified by condition without any requirement to contribute to general infrastructure, provided that the permission remains capable of being implemented. New planning applications, for similar developments on these sites (including applications for renewal of planning permissions), will however be required to comply with the terms of this SG and to policies set out in the LDP.

2.1 The Planning etc (Scotland) Act 2006 amends the Town and Country Planning (Scotland) Act 1997 by replacing the existing section 75 with a revised section 75 adding new sections 75A – 75G. Sections 75, 75A, 75B and 75C deal with planning obligations (previously known as planning agreements or section 75 agreements). A landowner may, in respect of land, either by agreement with the council or unilaterally, enter into an obligation (hereinafter referred to in this guidance as a "planning obligation or obligations") restricting or regulating the development or use of the land. Sections 75D – 75G deal with good neighbour agreements. The new provisions and associated regulations came into operation on 1 February 2011. For the avoidance of doubt the regulations apply to all agreements made or in preparation prior to, and after this date.

2.2 Legal agreements can also be made under other legislation including the Local Government (Scotland) Act 1973, the Countryside (Scotland) Act 1967, Sewerage (Scotland) Act 1986 and the Roads (Scotland) Act 1984 and provide a possible alternative mechanism to secure developer contributions. They are useful where the nature of the contribution is relatively straightforward, involves a one-off payment and/or does not require to be secured through successors in title. For this reason they can help speed up the development process. The council has used, and will continue to use, alternative agreements where appropriate and where they are considered to speed up the development process.

2.3 Scottish Planning Policy (SPP) and planning circulars state that Planning Obligations can be used to address the potentially negative impact of developments on infrastructure. Scottish Government Circular 3/2012: *Planning Obligations and Good Neighbour Agreements* sets out the basis for planning obligations which will be required to be met as a consequence of new development proposals.

2.4 Circular 3/2012 sets out a number of policy tests for planning obligations, these are:

- necessary to make the proposed development acceptable in planning terms (paragraph 15)
- serve a planning purpose (paragraph 16) and, where it is possible to identify infrastructure provision requirements in advance, should relate to development plans
- relate to the proposed development either as a direct consequence of the development or arising from the cumulative impact of development in the area (paragraphs 17-19)
- fairly and reasonably relate in scale and kind to the proposed development (paragraphs 20-23)
- be reasonable in all other respects (paragraphs 24-25)

2.5 This SG is consistent with the requirements of Circular 3/2012.

2.6 SPP and Planning Advice Note: PAN 75 – Planning for Transport identify the requirements to secure development which is sustainable, provides high quality public transport access to encourage modal shift and also facilitates movement by public transport including interchange facilities. The West Lothian LDP has been prepared within this context.

Strategic Development Plan

3.1 The Strategic Development Plan (SDP1) for Edinburgh and South East Scotland sets the strategic policy context for the securing of developer contributions towards infrastructure. Paragraph 123 states:

"Developer contributions are important and will be required to assist in delivery and to address any shortfalls in infrastructure that arise as a direct result of new developments. LDPs will set out the broad principles for planning obligations including the items for which contributions will be sought and the occasions on which they will be sought. Mechanisms for calculating levels of contributions should be included in supplementary guidance with standard charges and formulae set out in a way that assists landowners and developers."

3.2 Policy 9 provides the strategic policy support for the delivery of infrastructure as follows:

Policy 9 Infrastructure

The Strategic Development Plan identifies in Figure 2 and through its Action Programme infrastructure, including transportation infrastructure, required to deliver the development of the Strategy. Local Development Plans will:

a. 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;

b. Provide policy guidance that will require sufficient infrastructure to be available, or its provision to be committed, before development can proceed. Particular emphasis is to be placed on delivery of the strategic infrastructure requirements that are set out in Figure 2 and in the Action Programme; and

c. Pursue the delivery of infrastructure through developer contributions, funding from infrastructure providers or other appropriate means, including the promotion of alternative delivery mechanisms.

Particular emphasis is to be placed on delivery of the strategic infrastructure requirements that are set out in Figure 2 and in the Action Programme.

3.3 Strategic transport improvements within the West Lothian Council area include:

Edinburgh – Glasgow Rail Improvements
Edinburgh –Glasgow via Shotts rail line electrification
A801 improvements
Winchburgh rail station

Winchburgh M9 junction
M9 junction 3 upgrade
A71 improvements
A89 improvements
Park & ride proposals

West Lothian Local Development Plan (LDP)

3.4 The West Lothian Local Development Plan (LDP) was prepared within the context of Strategic Development Plan 1 (SDP1). Developer contributions towards infrastructure are referenced within policy INF1 of the LDP. This SG provides further detail around policy INF1 and describes when planning obligations will be sought, where exemptions may apply, and the methodologies through which planning obligations have been calculated. The LDP provides for 24,597 houses, employment land and other development to meet community needs over the period 2014 – 2024 and beyond.

3.5 The following LDP policies provide the context within which this SG has been prepared.

Policy INF 1 Infrastructure Provision and Developer Obligations

The council will seek developer obligations in accordance with Scottish Government Circular 3/2012 ('Planning Obligations and Good Neighbour Agreements'), as interpreted by emerging case law and amended by subsequent amendments and legislation, to mitigate the development's individual or cumulative impacts upon infrastructure, including cross-boundary impacts. Any such obligations will be concluded prior to the issue of planning permission.

Where appropriate developer obligations have been secured, planning permission will normally be granted. In all cases, the council will consider the economic viability of proposals alongside options of phasing or staging payments from developers.

Development will not be permitted to commence unless:

a. funding (including any contributions from developer obligations) for necessary infrastructure is fully committed and that infrastructure is capable of being delivered; or

b. phasing to manage demand on infrastructure has been agreed; or

c. in advance of all necessary infrastructure requirements being fully addressed, sufficient infrastructure is available in the interim to accommodate the development.

Only where infrastructure constraints, identified by the council in conjunction with relevant authorities, cannot be overcome, will there be a presumption against development.

Infrastructure requirements are identified in Appendix One and further details will be provided in subsequent supplementary guidance and the Action Programme. Any related planning obligations will require to meet the policy and legal tests set out above. Proposed sites for new infrastructure are listed in Chapter 6.

Note: Supplementary Guidance explaining how developer obligations will be implemented will be developed during the Plan period.

3.6 The LDP also includes specific policies relating to transport infrastructure. This SG is produced to support these policies and to give assistance to developers.

Policy TRAN 1 Transport Infrastructure

The council will co-operate with other agencies in preparing investment programmes to enhance the environment by active travel infrastructure, public transport facilities, traffic and parking management in its towns and villages.

Development will only be permitted where transport impacts are acceptable.

This will be established where appropriate, through a Transport Assessment which covers all modes of transport and has been approved by the council.

Parking levels for development shall conform to the council's current adopted standards.

Further guidance is found in the council's draft Active Travel Plan (2015) which will be taken forward as Supplementary Guidance alongside the council's draft Local Transport Strategy (refresh) (2016).

Strategic transport infrastructure requirements are set out in Chapter 6 of the LDP.

Policy TRAN 2 Transportation contributions and associated works

Developers will be required to provide or contribute towards, the provision of travel improvements including traffic and environmental management measures, measures to promote trips by sustainable modes including walking, cycling, public transport, car sharing, and road improvements where these would be justified as a result of new development or redevelopment.

Travel plans and an associated monitoring framework will be required to support major new developments such as the previously identified Core Development Areas, strategic housing allocations and inward investment proposals.

3.7 A number of transport proposals are identified in the LDP and these are set out in Table 1, those proposals highlighted in green are identified in the LDP Action Programme to be delivered in whole or part through developer funding.

Table 1: West Lothian Local Development Plan Transport Proposals

Ref	Location	Proposal
P-1	Addiewell rail station	Bus interchange, parking and path upgrade between Addiewell and railway station

P-119	Heatherfield (West)	Colinshiel link road
P-16	Clarkson Road /Greendykes Road	Safeguarded road line - Broxburn Distributor Road
P-17	East Broxburn CDA	Distributor road in association with Winchburgh CDA west of Faucheldean to Glendevon at Winchburgh
P-31	Milrig Holdings/Kirknewton railway station	Park & ride and bus interchange
P-33	Kilpunt	Land reservation for park and ride in support of Broxburn CDA
P-34	A801 Avon Gorge Crossing	Land reservation for new road crossing
P-35	Land east of Winchburgh	Land reservation for Dalmeny Chord (associated with the Edinburgh Glasgow Improvement Programme (EGIP)
P-36	Land between boundary with Edinburgh and Broxburn/Livingston	An extension of the Edinburgh Tramline to Broxburn, Uphall and Livingston is identified in SDP1 and account requires be taken of this when considering proposals for development in the north western part of West Lothian.
P-37	A8/A89/A899 corridor	A study to identify the specific initiatives to enhance sustainable transport options for travelling along the A8/A89/A899 corridor between Livingston Town Centre, the West Lothian/City of Edinburgh boundary, Newbridge and to Maybury Junction. Land will be safeguarded adjacent to the route for these initiatives and confirmed in detail upon completion of the study.
P-102	Linlithgow, Broxburn, Philpstoun and Winchburgh	Access to/from and along the Union Canal
P-103	Blackridge/ Kirknewton and Blackness/ Sth Queensferry	Links from the National Cycle Network (NCR) 75 (across central West Lothian) and NCN 76 (“Round the Forth” route)
P-107	Armadale/ Whitburn	Cycle route at B8084 from Whitdale Roundabout to Armadale Railway Station
P-108	Linlithgow/ Blackness	Cycle route at A803 from Linlithgow to the B903
P-109	Newton/ Sth Queensferry	Cycle route at A904 Newton to City of Edinburgh boundary
P-110	Livingston/ Wilkieston	Cycle route at A71 from Lizzie Brice’s roundabout to Wilkieston
P-111	Ecclesmachan/ Threemiletown	Cycle route at B8046 Ecclesmachan to Threemiletown
P-112	West Calder/ Harburn	Cycle route at B7008 West Calder (Turniemoon crossroads) to Harburn
P-114	Bangour/ Dechmont	Off road pedestrian/cycle route at Drumcross/Blacklaw Ridge Road/Bathgate Quiet Hills Initiative
P-117	Bathgate / Harthill	New pedestrian / cycle route from Inchcross Roundabout, Bathgate along the A706 and B7066 at Whitburn towards Greenrigg / Harthill
P-44	M9 (Junction 3) westbound slips	Westbound slip roads on M9 at Burghmuir
P-45	M9 (Junction 3)	Coach park and ride facility
P-46	Kettilstoun Mains Park	Provision of cycle track west of existing leisure centre
P-115	Linlithgow	Traffic management measures in town centre

P-101	South Murieston /Linhouse	Distributor Road
P-70	Houstoun Road / Drumshoreland Road link	Houstoun Road / Drumshoreland Road distributor road link
P-75	West Calder railway station	Bus interchange and parking at West Calder rail station (associated with Mossend/Cleugh Brae CDA)
P-76	Road reservation	Road corridor linked to Mossend/Cleugh Brae/Gavieside CDA requirements north from A71 to A705
P-83	Cowhill	Express coach service, with associated park & ride
P-84	A706 – B7066 link, Polkemmet	Land safeguarded for road corridor
P-88	North of Wilkieston A71 bypass;	Relief road north of Wilkieston
P-90	M9 at Duntarvie	Land reservation for new motorway junction on the M9
P-91	Winchburgh CDA	Land reservation for rail station and associated park and ride
P-92	Winchburgh CDA	Distributor road in association with Broxburn CDA (south of Glendevon /west of Faucheldean)

3.8 In addition, development proposals set out in the LDP are likely to impact on the transport network and may require developer contributions to assist in site delivery. This specifically applies to the Core Development Areas (CDAs), Linlithgow, and Heartlands at Whitburn. Details of these, together with contributing sites are set out in Table 2. Other sites identified in the LDP for development but outwith the areas listed in Table 2 may require transport interventions to assist in delivery, for example new junctions or junction improvements. Where this is the case, costs associated with these would be determined on submission of planning applications and the interventions would require to be delivered at developer expense. Windfall sites, that is sites which are not allocated for development in the LDP, will also be required to contribute to transport infrastructure.

Table 2: West Lothian Local Development Plan Transport Infrastructure Requirements and Contributing Sites

Area/Settlement	Transport Infrastructure Requirements
Almond Valley and Livingston Core Development Area Livingston – H-LV13, E-LV48 West Calder – H-WC 1, H-WC2, H-WC3, H-WC4 East Calder (Calderwood and Raw Holdings) – H-EC 1, H-EC2, H-EC3, H-EC4, H-EC5, H-EC6, H-EC7, H-EC8, H-EC9, H-EC10, E-EC 1 Wilkieston – H-WI 2	A71/A89 corridor P-110 cycle route at A71 from Lizzie Brice's roundabout to Wilkieston P-76 Road corridor linked to Mossend/Cleugh Brae/ Gavieside CDA requirements north from A71 to A705 West Livingston/Mossend • network of pedestrian and cycleway links including cycleway connections to National Cycle Route 75 at Almond North to Starlaw; • improvements at West Calder railway station including provision of park and ride, bus turning facility, cycle parking at the north side of the station and the partial

	closure of the existing substandard access onto Limefield Road; • bus priority measures are required along Charlesfield Road with provision of a park and ride site requiring further assessment; • new distributor road network with bridges across the River Almond and West Calder Burn linking Toll Roundabout with Alba Campus; • new distributor road network linking A71 with Simpson Parkway (Kirkton Campus) via Stepend and Gavieside Farm; and • improvements to A705 and footways between Toll Roundabout and Seafield; Calderwood • contribution to improvements at Kirknewton railway station including provision of new park and ride facility, bus turning facility and cycle parking at Milrig Holdings; • network of pedestrian and cycleway links including cycleway connections to National Cycle Route 75 and Kirknewton Railway Station; • network of distributor roads linking B7015 with A71 (with bus priority); • upgrading of B7031 from A71 to Kirknewton Railway Station; and • north relief road for Wilkieston linking A71 with B7030 (LDP Proposal P-88).
Armadale Core Development Area H-AM5, H-AM6, H-AM7, H-AM8, H-AM9, H-AM10, H-AM11, H-AM12, H-AM13, H-AM14, H-AM15, H-AM19	• Armadale Station Park and Ride; • new distributor road network serving the southern expansion of the town linking Lower Bathville, A801 and B8084; • new distributor road serving expansion at Colinshiel linking East Main Street with B8084; • network of pedestrian and cycleway links including new cycleway connections to National Cycle Route 75 and links to the paths in the surrounding countryside; • dualling the A801 between Boghead Roundabout and M8 junction 4; and • contributions to park and ride provision on the south side of Armadale railway station.

East Broxburn and Winchburgh Core Development Area H-BU4, H-BU 5, H-BU8, H-BU9, H-BU10, E-BU5 H-WB3, H-WB4, H-WB5, H-WB6, H-WB7, H-WB8, H-WB9, H-WB10, H-WB11, H-WB12, H-WB13, H-WB16, E-EB1, E-WB2	• new Distributor road network linking new housing at Winchburgh (west of Faucheldean) with new housing at East Broxburn; • improvements to B8020 between Winchburgh and Broxburn; • new railway station at Winchburgh and associated park and ride and public transport interchange; • new junction on the M9 (in the vicinity of Duntarvie) with associated park and ride; • network of pedestrian and cycleway links including cycleway connections to Union Canal towpath/core path and links to the paths in the surrounding countryside; • park and ride provision at Kilpunt south of A89 (with potentially a road bridge across the Brox Burn); • network of pedestrian and cycleway links including cycleway connections to Union Canal towpath and improved links to town centre via Stewartfield Park; • new distributor road linking Clarkson Road with the A89 via Candleworks, Albyn and West Wood; • new distributor road linking Clarkson Road with B8020 via the mixed use site at Greendykes Road West; and • contributions to public transport improvements on the A89 and at Newbridge roundabout as identified in future SG.
E-BB 5a, b c and d (See map 1)	A801 dualling (M8 junction 4 to Pottishaw roundabout)
H-BL 1, H-BL2, H-BL 3, H-BL 4, H-BL 5 and H-BL 6, E-BL1, E-BL2Z	Blackridge Railway Station
H-LL 3, H-LL4, H-LL 5, H-LL 7, H-LL 11, H-LL 12, E-LL2	P-44 M9 (Junction 3) westbound slips Westbound slip roads on M9 at Burghmuir P-45 M9 (Junction 3) Coach park and ride facility P-115 Linlithgow Traffic management measures in town centre P-118 Linlithgow new access associated with proposed housing site H-LL 10
West Lothian wide	Travel Plans and Residential Travel Information Packs

*source Appendix 2 West Lothian Local Development Plan and Action Programme

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Transport Appraisal and Modelling

4.1 To inform the preparation of the West Lothian Local Development Plan (LDP) the council undertook a transport appraisal and commissioned transport modelling to:

- provide evidence to the council and in turn Transport Scotland regarding impact of proposed developments on the motorway network through West Lothian;
- help plan future transport network improvements through identifying congested junctions and identifying solutions; and
- provide a mechanism to link the funding of potential improvements of the network to specific developments that are likely to generate additional traffic which will result in improvements being required to the network.

4.2 The SEStran Regional Model was used as a base for the modelling work. Since adoption of the LDP, further modelling work has been undertaken specifically to inform developer contribution requirements towards transport infrastructure to support development in Linlithgow.

4.3 Transport appraisals and modelling were prepared by the council and consultants (SYSTRA) in accordance with the Development Planning and Management Transport Appraisal Guidance (DPMTAG). Transport Scotland was consulted at each stage in the appraisal process. DPMTAG is an objective-led approach which considers all modes of transport in generating and appraising appropriate transport interventions and mitigation of any consequential impact of planned growth identified through the development strategy.

4.4 In addition, transport assessments which have been undertaken in support of planning applications for the former Core Development Areas of Armadale, Winchburgh, East Broxburn and Uphall, and Livingston and the Almond Valley (Calderwood, Gavieside/Cleugh Brae/Mossend) and other development sites within the LDP area have also been taken into account and continue to be implemented and inform ongoing development at these and other locations across West Lothian.

4.5 Transport modelling was also undertaken to inform the *Strategic Development Plan* (SDP1) however, this was based on a different level of development and spatial strategy to that which is set out in the West Lothian Local Development Plan (LDP). The transport appraisal undertaken by Transport Scotland for the SDP modelled the development outlined in the proposed SDP.

4.6 Although the LDP seeks to give priority to sustainable transport modes such as active travel, public transport and car share in compliance with SPP 2014, meeting the identified overall level of housing need and economic growth aspirations which are set out in the LDP will have implications for the transport network. An increase in the capacity of the road network in some key locations will also be required if both the housing and employment growth set out in the LDP are to be accommodated.

4.7 Further transport assessment work is anticipated over the lifetime of the LDP for other development proposals in the plan area. Such assessments should take account of all current transport policy and include:

a) Consideration of new government and local targets for carbon reduction and transport modal split;

b) A no net detriment assessment of development traffic, which will look to mitigate the adverse effects of development traffic only (i.e. without a need to allow for underlying traffic growth);
c) Consideration of the potential effects of land uses other than housing development. (e.g. retail and leisure development); and
d) Local rail infrastructure requirements including a commitment to consult Network Rail where development may impact on the rail network.

5.1 The specific nature of transportation requirements is usually determined through a Transport Assessment (TA) in association with the preparation of a planning application. It is the responsibility of the applicant/prospective developer to prepare or commission the preparation of an appropriate TA which then allows for detailed traffic impacts to be properly addressed and suitable design solutions for the scale and nature of the proposed development identified prior to consent being granted.

5.2 Where proposals are anticipated to impact on the trunk road network, Transport Scotland encourages early engagement. Trunk road infrastructure in addition to that listed within this SG may be required to support development, the cost of which shall be met by the developer. As roads authority, any modifications to the trunk road network will require Transport Scotland approval.

A71Corridor

5.3 Within the Livingston and Almond Valley CDA there are two major allocations at Calderwood and at West Livingston/Mossend providing for housing and mixed use development, including employment allocations. The development proposals at Calderwood and West Livingston/Mossend will impact on transport demand along the A71 corridor and given the scale of development proposed the council has undertaken a number of studies to identify sustainable transport solutions on the A71 corridor. Further transport analysis has been submitted as part of the planning application process for developments within the CDA. Developer contributions towards transportation improvements to the A71 are required to support these developments and specifically towards public transport improvements on the A71 which influence future modal share and contribute towards reducing car based transport.

5.4 Developer contribution costs are being shared by the council and developers for transportation infrastructure costs on the A71 and part funded jointly by the Livingston and Almond Valley CDA developers. Some costs are being fully funded only by the Calderwood CDA developer which is currently under construction. These are set out in the section 75 Agreements attached to planning permission for development within the CDA. At February 2019 the council has received £15, 476.54 in developer contributions towards improvements to the A71. The council has undertaken some improvement works to the Livingston section of the A71.

5.5 The key infrastructure requirements in relation to movements that go along or impact on the A71 corridor are set out in Table 3. These key infrastructure requirements have been tested as part of the overall development strategy and are directly linked to each CDA area and are considered necessary to enable the identified scale of development to progress. The detailed information from the transport assessments in support of the planning applications for Calderwood was used to assess the potential impact of the development on the transport network on the A71.

5.6 Stirling Developments Ltd has accepted that as the largest developer within the Calderwood CDA they will be responsible for providing and forward funding the junction improvements onto the A71 and also the Wilkieston Bypass. These are necessary to accommodate the impact of the Calderwood CDA. Planning conditions attached to the planning approval in principle for the Calderwood development indicate trigger points when infrastructure and junction improvements

are required. However, as not all of the Calderwood developers were engaged in discussion on how the costs for each of the improvements was to be shared, it was left to the council to take appropriate contributions from the remaining Calderwood developers towards the three key elements of shared infrastructure. Each housing developer's contribution is based on a percentage of their housing development in relation to the total scale of housing proposed for the whole of the Calderwood CDA. The council will collect each developer's contribution based on a housing unit cost and reimburse Stirling Developments Ltd after construction of each of the following works.

5.7 In the event that the CDA developers make contributions in advance of the final costs being known, these developers shall be entitled to a full refund from the council of any overpayment made.

Table 3: A71 Infrastructure Requirements

A71 Corridor Study Schemes Proposed Scheme	Anticipated Costs	CDA Developer	Developer Requirement
Bus lane and bus priority at the A71/Kirknewton/East Calder junction	£605,555	Calderwood and West Livingston/Mossend	Contribution to costs. Cost sharing identified in Table 4.
Eastbound bus lane from above to the junction of the A71 with the B7030	£1,038,095	Calderwood and West Livingston/Mossend	Contribution to costs. Cost sharing identified in Table 4.
New traffic light layout with bus priority at the A71/B7031 junction	£1,041,555	Calderwood	100% funding. Requirement to access the CDA development area. Cost sharing between Calderwood developers identified in Table 4.
Eastbound bus lane on the A71 between the B7031 and the B7015	£4,775,238	Calderwood and West Livingston/Mossend	Contribution to costs. Cost sharing identified in Table 4.
New traffic light layout with bus priority at the junction of the A71/B7015	£519,048	Calderwood	100% funding. Requirement to access the CDA development area. Cost sharing between Calderwood developers identified in Table 4.
Wilkieston north west bypass to B7030	£2,941,270	Calderwood	100% funding. Requirement to access the CDA development area. Cost sharing between Calderwood developers identified in Table 4.

NB: costs have been indexed to fourth quarter 2017

5.8 Of the schemes listed in Table 3, in some instances costs are to be shared by all of the Livingston and Almond Valley CDA developers and are not specific to a single developer. Projects which are the subject of shared costs are set out in Table 4.

Table 4: A71 Corridor Study Schemes – Shared Costs

Bus priority contributions for A71 (excludes junctions)
Total trips 5,240 west of B7031 junction using 2-way AM and PM peak flows: • base traffic ATC 2007 3,205 trips (61.1%) • Calderwood 1,387 trips (26.5%) • Gavieside 648 trips (12.4%)
Feasibility cost for proposed bus priority measures on A71 - ~~£6,665,769~~ £6,418,884
Taking the above trips and calculating the scheme on a pro-rata basis means: Base traffic £3,921,938 Calderwood £1,701,004 West Livingston/Mossend £795,942 To apportion the costs for each developer it is easier to work out a rate per house: Calderwood 2800 units £607.50 per unit West Livingston/Mossend 220 units £361.79 per unit
Calderwood CDA Shared Infrastructure Costs*
Stirling Developments Ltd has forward funded and constructed the shared infrastructure however, the following levels of contributions will be secured from other developers in the Calderwood CDA area and repaid to Stirling Developments Ltd by the council upon completion of the infrastructure: Wilkieston Bypass Estimated cost £2,941,270 all for Calderwood with 2,800 units = £1050.45 per unit. Traffic signals at B7015 junction Estimated cost £519,048 all for Calderwood with 2,800 units = £185.37 per unit. Signalisation and road re-alignment at B7031 junction Estimated cost at £1,041,555 for all Calderwood with 2,800 units = £372 per unit. *fourth quarter 2017 prices

5.9 Studies carried out to date to inform infrastructure requirements along the A71 corridor include the West Lothian Sustainable Transport Study and the A71 Corridor Study together with transport appraisals carried out to support planning applications for developments along the corridor.

5.10 There is a current requirement within the approved SDP to safeguard the A71 Upgrade from Hermiston to East Calder. This requirement is identified as Item 94 of the Action Programme and is safeguarded by SDP policy 9. This safeguarding has also been identified in the West Lothian LDP (P-88 refers). The LDP also identifies a proposal for a cycle route along the A71 from Lizzie Bryce to Wilkieston. This project has not as yet been costed and funding is yet to be agreed.

5.11 In terms of public transport, service improvements on the Edinburgh to Glasgow via Shotts line have been implemented increasing peak hour services and improving passenger capacity on the route.

5.12 Given the ongoing development within the Livingston and Almond Valley CDA it is considered vital that clear priorities are established to implement the elements of the A71 public transport strategy in the most beneficial order. There are two key bus routes that serve the Calderwood area and access the A71. The No.X27 and X23 routes from East Calder use the B7015 along to the A71 junction and then the A71 into Edinburgh. The priority section to introduce measures to improve public transport journey times on the A71 is from the B7015 to Wilkieston. The second route uses the Langton Road signals with A71 to access Kirknewton. The No.X28 and local bus No.23 currently use this route and then access the A71 at the signals with Linburn Road.

5.13 The No.X40 route between St John's Hospital and Edinburgh Royal Infirmary running approximately once an hour in each direction is the only bus service operating between Lizzie Bryce roundabout and the B7015. Therefore, in the medium to long term it is unlikely that there will be a bus from Livingston to Edinburgh directly via the A71 that will be at a frequency or have sufficient demand to make this route worthwhile. It is therefore proposed that the council reallocates monies for the formation of bus lanes on the A71, collected or intended to be collected under Section 75 agreements following the now superseded 2006 Supplementary Planning Guidance (SPG) "A71 Corridor Study", to a proposed bus lane on the A71 between the B7015 and the B7030 and further, that a strategy regarding implementation of bus priority measures should now be considered with the following priorities:-

a) Eastbound bus lane on the A71 between the B7015 and the B7030;

b) Bus lane and bus priority (north/south) at the Kirknewton/East Calder junction (C27);

c) Widen the A71 between west of Curriehill Road and Heriot-Watt north gate on the south side to create third lane (eastbound bus lane);

d) Bus lane and bus priority on the A71 from the Kirknewton/East Calder junction (C27) to the B7031;

e) Eastbound bus lane between the entrance to the Dalmahoy Hotel and Addiston Mains. (Proposed widening on the north side); and

f) Bus lane and bus priority (eastbound) at the Kirknewton/East Calder junction (C27).

5.14 Two of the priorities listed above are within the City of Edinburgh Council administrative area. Given that contributions are required to the wider package of measures from both local authorities, it is considered appropriate that they continue to be identified in the priority list.

5.15 The Almondell part of the Calderwood CDA is under construction and subject to Section 75 Agreement. Planning consent has been granted for part of Raw Holdings area of the Calderwood CDA. The transport assessment submitted with the Almondell planning application identified a change to the proposed junction improvements outlined in the A71 Corridor Study. The assessment identified that a signalised junction on the A71/B7015 would be more appropriate than the roundabout proposed in the Corridor Study. The proposed roundabout and part time

signals at the staggered A71/B7031 junction have been replaced with a signalised junction – all fully funded by the Calderwood development.

5.16 The remaining improvements on the A71, which are not fully developer funded but require contributions to the overall cost, are the provision of bus priority along the A71 between the junctions most heavily affected by the developments. These schemes are identified in Tables 3 and 4. From transport assessments undertaken for Mossend and Calderwood it has been possible to allocate how these costs should be shared between the Livingston and Almond Valley CDA developments. These bus priority measure costs are to be met by both the Calderwood and West Livingston/Mossend CDA developers as well as West Lothian and the City of Edinburgh councils.

A89/A8

5.17 The A89/A8 route is a key cross boundary travel corridor between West Lothian and Edinburgh. A shared cycle footpath caters for longer distance cycling trips. However, improvements to public transport are key to delivering sustainable transport options in the Winchburgh and East Broxburn CDA. Previous study work on the A89/A8 corridor has been reviewed and developed to look at cross boundary public transport issues in partnership between West Lothian Council, City of Edinburgh Council and Transport Scotland.

5.18 The requirement for a park and ride site at Kilpunt is already identified and the study when completed will identify specific initiatives along the A89/A8 corridor and in particular will identify public transport improvements at Newbridge Roundabout. As reflected in the LDP Action Programme, developer contributions will be sought towards park and ride provision in addition to other improvements identified for the A89/A8 corridor.

A801 Corridor

5.19 The A801 traverses West Lothian in a north/south direction connecting central West Lothian to Falkirk–Grangemouth. Planning permission has been secured for a new Avon Gorge crossing and is partially funded. West Lothian and Falkirk Councils continue to seek funding from the Scottish Government for construction of the crossing - the long established 'missing link' between the M8 and M9 via the A801, across the Avon Gorge into Falkirk - and associated works with both councils safeguarding land for implementation. The closure and removal of through traffic from existing routes associated with the A801 will create opportunities to improve accessibility and local links to the Avon Valley Heritage Trail.

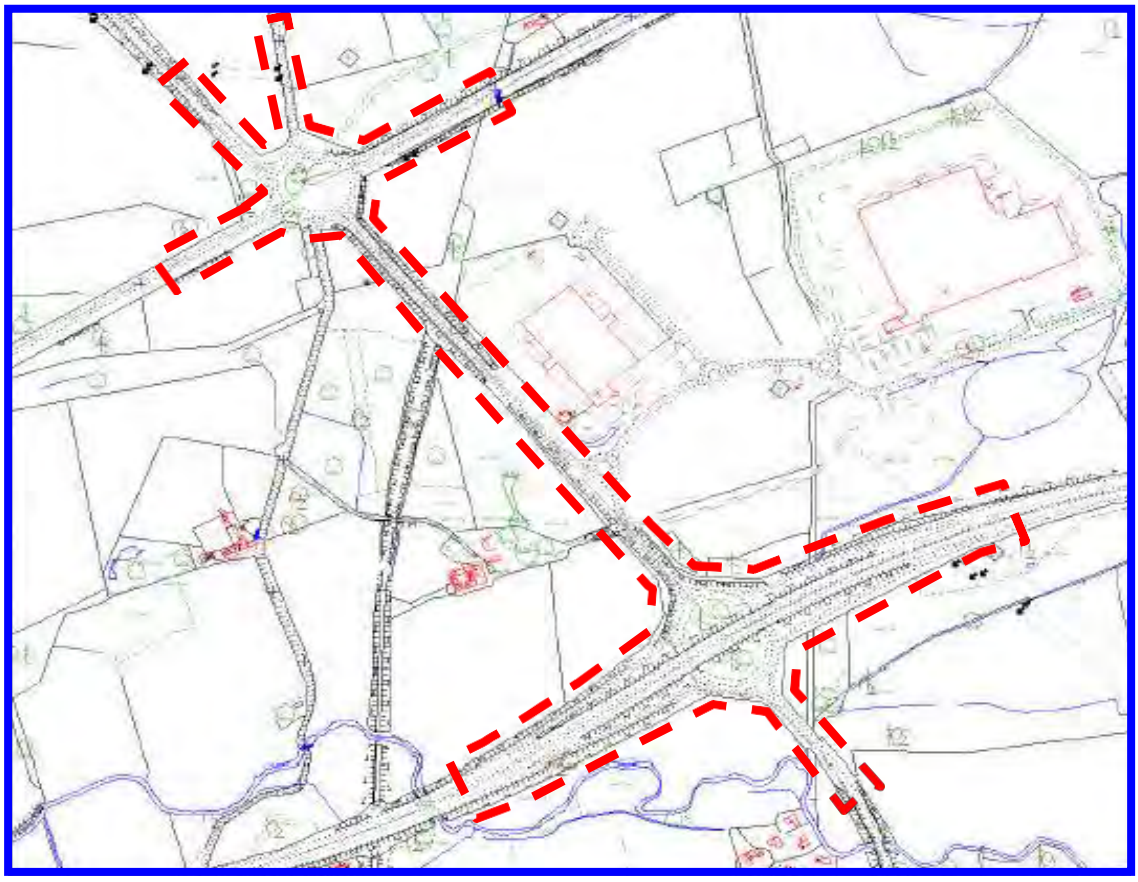
5.20 The LDP includes sites where development would impact on the A801 at its southern end linking with the M8, including land within the previously identified CDA allocation at Armadale, the employment sites at Pottishaw/ Riddochhill and further afield at Polkemmet and Cowhill. The section of the A801 from Junction 4 on the M8 to the Boghead Roundabout, Bathgate is currently single carriageway and includes the access roundabout at J4M8. The M8 is a trunk road managed and maintained by Transport Scotland whilst this section of the A801 is a local road which is managed and maintained by West Lothian Council.

5.21 Further analysis and assessment of anticipated traffic levels on the A801 has been undertaken by the council and this indicates a dramatic lowering of expected traffic levels for that section of the A801 covered by the proposed dualling (see Figure 1) and as such developer contributions towards dualling of the A801 cannot be justified at this time. At a future date it may be that

developer contributions will be required towards dualling of the section of the A801 from Junction 4 on the M8 to the Boghead Roundabout, Bathgate. The Supplementary Guidance will therefore be reviewed at a later date should future analysis indicate that dualling will be required. Appendix 1 sets outs the council's analysis in reaching this conclusion.

5.22 In the interim, the current cost of the work required for dualling of the A801 has been estimated at £5,958,283 million (quarter 4, 2017). Factors which would be taken into consideration in calculating the cost per trip would take into account developments that are allocated in the LDP and any windfall developments arising within the area identified in Figure 2.

Figure 1: A801 – M8 Junction 4 to Pottishaw Roundabout



5.23 Certain types of development within the defined developer contribution zone shown in Figure 2 may require at some future point to pay a developer contribution towards the upgrading of this section of the A801. Developments included in the contribution zone are set out in Table 5. However, not all of these allocations will require to make contributions by virtue of extant planning permission or having been built out since adoption of the LDP.

Figure 2: Catchment Area for developer Contributions for Dualling A801 – M8 Junction 4 to Pottishaw Roundabout

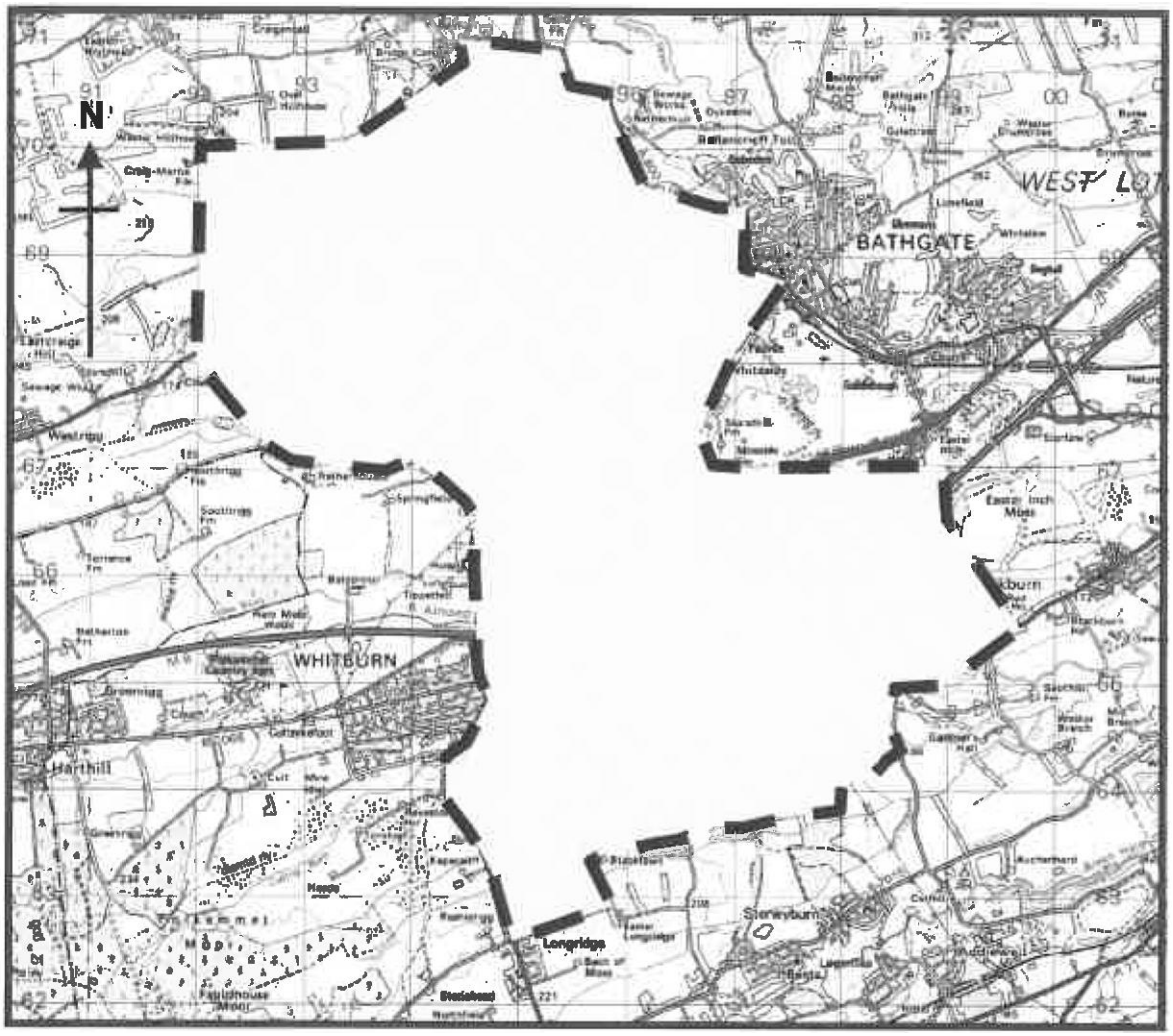


Table 5: Developments within the Contribution Zone for Dualling of the A801

LDP Site Reference	Location/Site Address	No. of Units (estimate)/use class	Remaining capacity at 31 March 2018
Housing Allocations			
H-WH 4	Whitdale East Main Street, Whitburn	49	0
H-BB 1	Daisyhill Road, Blackburn	9	9
H-BB 2	Riddochill Road, Blackburn	15	15
H-BB 3	West Main Street (West) , Blackburn	6	6
H-BB 4	West Main Street (East) , Blackburn	6	6
H-BB 5	16 Bathgate Road, Blackburn	5	5
H-BB 6	11 East Main Street (former garage), Blackburn	7	7
H-BB 7	Redhouse West, Blackburn	100	45
H-BB 8	East Main Street (former adult training centre) , Blackburn	12	12
H-BB 9	Ash Grove, Site A, Blackburn	5	5
H-BB 10	Ash Grove, Site B, Blackburn	5	5

H-BA 6	Easton Road	298	298
H-BA 7	Little Boghead site 2	20	20
H-BA 21	13-15 Glasgow Road, Meadowpark	22	22
H-BA 29	Glasgow Road	53	45
H-BA 27	Whitburn Road	100	100
H-BA 14	Windyknowe, Glasgow Road (east), Bathgate	14	0
H-BA 15	Windyknowe, Glasgow Road (west), Bathgate	46	46
H-BA 18	9 Hardhill Road (former Creamery garage) , Bathgate	14	14
H-AM 1	Muirfield, North Street, Armadale	10	10
H-AM 3	Nelson Park/Mallace Avenue, Armadale	26	26
H-AM 4	High Academy Street (former nursery), Armadale	6	6
H-AM 5	Colinshiel (Site A) , Armadale	135	135
H-AM 6	Colinshiel (Site B) , Armadale	135	135
H-AM 7	Tarrareoch (Southdale Meadows), Armadale	85	0
H-AM 8	Tarrareoch Remainder, Armadale	131	131
H-AM 9	Netherhouse Phase 1, R1A East (Ferrier Path), Armadale	13	0
H-AM 10	Netherhouse Phase 1, R1B West (Hanlin Park), Armadale	26	0
H-AM 11	Netherhouse, Remainder, Armadale	85	0
H-AM 12	Standhill (North), Armadale	300	300
H-AM 13	Standhill (South), Armadale	110	110
H-AM 14	Trees Farm, Armadale	254	254
H-AM 15	Lower Bathville, Armadale	400	400
H-AM 16	Mayfield Drive, Armadale	22	22
H-AM 17	Drove Road, Armadale	26	26
H-AM 18	Stonerigg Farm, Armadale	11	11
H-AM 19	Tarrareoch Farm, Armadale	320	320
25/17	Torbane Drive, East Whitburn	12	12
25/16	1 Bathgate Road, East Whitburn	5	5
1/43	7 North Street, Armadale	19	19
1/40	Bathville Cross phase 4	3	3
	Bathville Cross phase 5	9	9
Employment Allocations			
E-BB 1	Riddochill, Inchmuir Road 1, Bathgate	Use classes 4, 5 & 6	
E-BB 3	Pottishaw Place, Bathgate	Use classes 4, 5 & 6	
E-BB4	Inchmuir Road, Bathgate	Sui generis	
E-BB 5 a-d	Pottishaw, Bathgate	Use classes 4, 5 & 6	
E-BB 6	West Main Street, Blackburn	Use class 4	
E-EW 1	Whitrigg (north east), East Whitburn	Use class 6	
E-EW 2	Whitrigg (south west), East Whitburn	Use classes 4, 5 & 6	

Source: West Lothian Local Development Plan, September 2018 & Housing Land Audit 2018

Table 6 – LDP Housing Allocations to Armadale

Site Reference	Site Name	Number of Units	Trips
H-AM 7 to 11 H-AM 14 H-AM19	Tarrareoch (Southdale Meadows) Tarrareoch (Remainder) Netherhouse Phase 1, R1A East (Ferrier Path) Netherhouse Phase 1, R1B West (Hanlin Park) Netherhouse (remainder) Trees Farm Tarrareoch Farm	1320	962
H-AM 5 & 6	Colinshiel (Site A & Site B)	270	196
H-AM 12 & 13	Standhill (North) & Standhill (South)	410	257
H-AM 15	Lower Bathville	400	416

5.24 Current anticipated costs for the dualling of the A801, should this be required at some future date are set out in Table 7 below.

Table 7: Developer Contributions for A801 Upgrade to Dual from M8 to Boghead Roundabout

Component of Scheme	Cost
Cost estimate for road upgrade	£4,005,750
Land Purchase (assumed 1ha)	£36,728
Design Time	£148,636
Topographical surveys	£5,945
Ground Investigations	£22,295
Wildlife, habitat and ecological survey	£5,202
SUDS drainage design	£89,182
Assume Public Utility costs of	£1,102,882
Sub Total	£5,416,621
Contingencies 10%	£ 541,662
Total Cost	£5,958,283

5.25 There will be a requirement that the Pottishaw roundabout will be assessed for capacity issues for each of the large developments proposed within the catchment area identified in Figure 2 above and at some stage capacity increases will be required in terms of additional lanes at the roundabout. These will be assessed as with all new developments in terms of their individual transportation assessment. Capacity issues may be identified with solutions being considered by the council as to whether they are practical or whether there is a need for future developers

to carry out the work. Capacities and link flows will be measured at the time of any future application which has a direct impact on this section of the road infrastructure.

5.26 To inform any future requirements for improvements to the Pottishaw roundabout the council will review Transport Statements (TS) or Transport Assessments (TA) submitted in support of planning applications. Small scale developments which do not require a TS or TA will be exempt from contributing to the scheme.

5.27 In order to assess link flow capacity to the A801 the council will take into account the transport assessment work undertaken by the Southdale developers (and considered by the Scottish Government Reporter at Appeal (POA-400-2004)) will be utilised by the council to inform decision making. All developers will still however be required to carry out junction assessments and mitigate their development impact. Such assessments should identity any impact on the A801 and any requirements arising for improvements to the Pottishaw roundabout.

5.28 In circumstances where the council is satisfied that a contribution to the scheme is appropriate, the council will have regard to Circular 3/2012 *'Planning Obligations and Good Neighbour Agreements'* and will only seek contributions which are reasonable and relate to the scale and kind of development proposal. Contributions will be secured through a Section 75 (or Section 69) agreement. The agreement will need to be concluded before planning permission can be granted. It is likely that developers will need to contribute to the cost of preparing legal agreements if delays are to be avoided. The council will have regard to the following principles in considering development proposals:

(i) Where an applicant owns or has in place an option to acquire the land required to implement part of the dualling proposal, the council will require ownership of that land to be transferred to the council at nil cost to the council. This will form part of the applicant's contribution to the scheme. If the council needs to acquire land through compulsory purchase to implement all or part of the scheme, the full cost of doing so will be met through developer contributions.

(ii) The council may accumulate contributions in a dedicated fund until it is in a position to undertake construction. Agreements will make provision for returning funds after an agreed period of time if not used. Beyond capacity, developments may be delayed until sufficient funds have been accumulated to implement part or all of the dualling scheme. The need for suspensive conditions will be assessed on a case by case basis.

(iii) Where agreement cannot be reached on the impact of a proposed development and the amount of contributions, planning permission will be refused.

Blackridge Railway Station

5.29 A new rail station at Blackridge has been forward funded by the council in parallel with the £312 million Airdrie to Bathgate rail project. The council has underwritten approximately £2m of the construction costs of the new station and intends to recover this amount through developer contributions. The total cost of providing the station, access road and park and ride facility was £1,980,000

5.30 The station addresses the cumulative transport impacts of new development on Blackridge and its environs, providing better transport links and stimulating other social, economic and environmental benefits.

5.31 Developer contributions will be required from all new residential developments in Blackridge and within the vicinity of Blackridge and will be used to reimburse the council for all legitimate expenditure associated with the new railway station and improvements to existing or new public spaces or circulation routes where these integrate the station or facilitate movement between new developments. The contribution zone is set out in the map below.

5.32 The only exemptions will be small developments comprising four or less units, unless they are clearly part of a phased development of a larger site. In such cases the council will seek to agree appropriate sums with the applicant.

5.33 Where outline consent has already been granted, without any requirement to contribute to the new railway station, a reserved matters application pursuant to that outline will not in normal circumstances be expected to provide a new contribution. However, any new outline or detailed application will be expected to comply with the terms of this SG. Contribution rates are set out in Table 9.

Table 8: Developer Contributions Towards Blackridge Railway Station

<table>
<tr><th colspan="3">EXPENDITURE</th></tr>
<tr><td>ACCESS ROAD AND BRIDGE</td><td colspan="2">RAIL STATION</td></tr>
<tr><td rowspan="4">access road and bridge £850,000</td><td>WLC cash contribution</td><td>£536,000</td></tr>
<tr><td>Car park costs</td><td>£744,000</td></tr>
<tr><td>Transport Scotland credit</td><td>- £150,000</td></tr>
<tr><td>Total</td><td>£1,130,000</td></tr>
<tr><td colspan="3">Total costs to be recovered from developers
£1,980,000</td></tr>
</table>

Methodology for calculating contributions

5.34 The developers of LDP sites H-BL4, H-BL5 and H-BL6 will be required to make a pro-rata contribution (X) towards the costs associated with the delivery of the new railway station based on the notional site capacity of 250 residential units.

5.35 The developers of the land immediately east of local plan site H-BL4 shall contribute 100% of the costs associated with the construction of the access road serving the station park and ride facilities (£850,000) plus a pro-rata contribution (X) towards the costs associated with the delivery of the new railway station. (X) is calculated by subtracting the cost of the access road serving the station park and ride facilities (£850,000) from the total costs to be recovered (£1,980,000) and dividing the resultant sum of £1,130,00 by 480. The figure of 480 is obtained as follows:

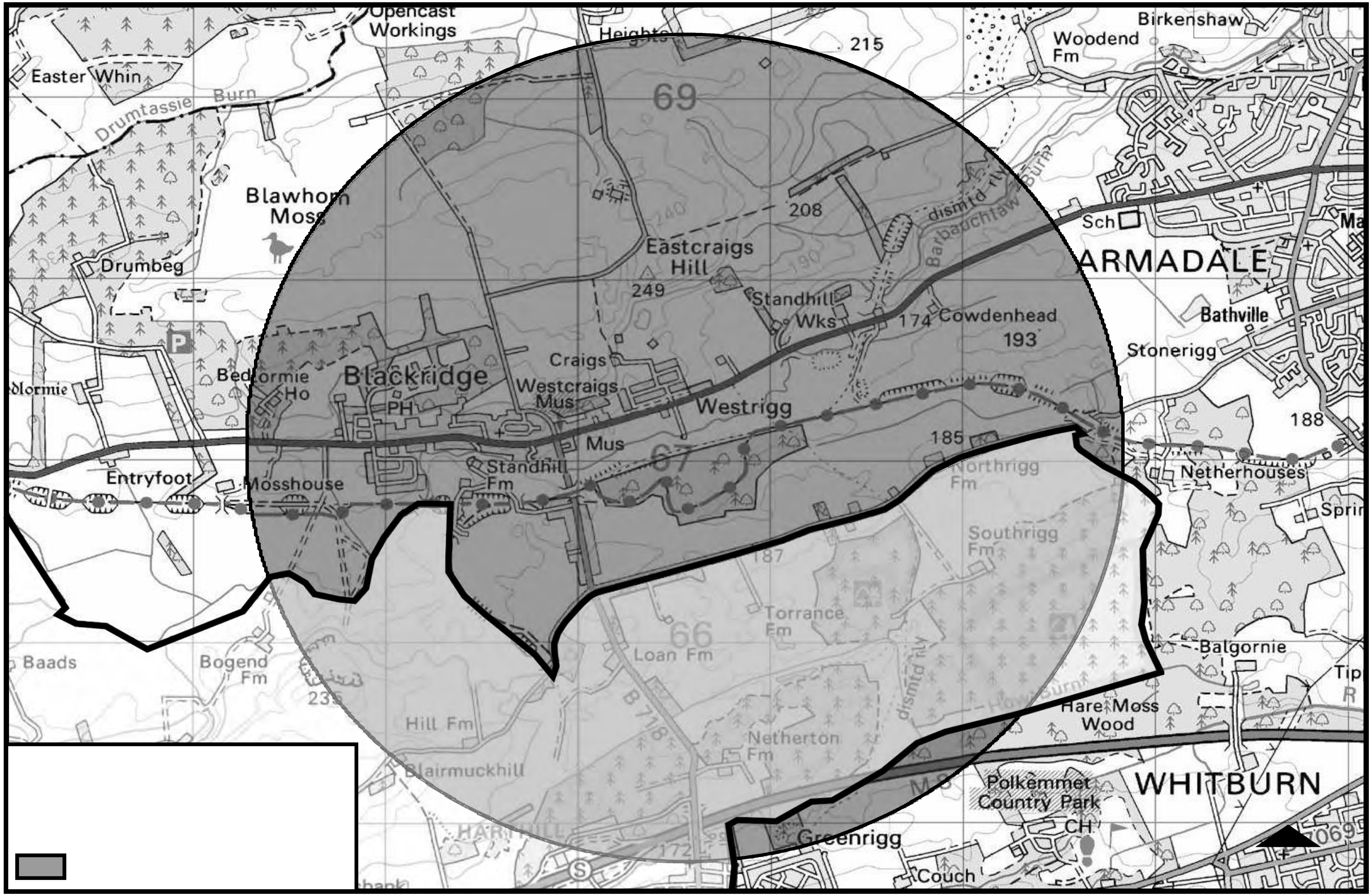
Table 9: Developments within the Contribution Zone for Blackridge Railway Station

Site Ref	Site Name	No. of Units
H-BL4	Craiginn Terrace	210
H-BL5	Woodhill Road	30
H-BL6	South of Craiginn Terrace (part of H-BL4)	10
n/a	Notional windfall element	230
Total		480

(X) is therefore £1,130,000 ÷ 480 = £2,354

5.36 These specific contributions should be considered as being additional to any other contribution required in relation to the development to cover improvements to the road network or traffic management. These could include provision for pedestrian and cycle facilities, infrastructure creating accessibility improvements to public transport or other road based improvements required as a direct result of the development. Where a Transport Assessment has been prepared, this should provide a basis for addressing the transport impacts in a holistic manner, and set out the basis of the relationship between railway station contributions and any other transport contributions.

5.37 Depending on the particular circumstances of a proposed residential development, the council may, on application, agree for payments to be made at a later stage in the development process than would otherwise be considered appropriate, for example once houses have been sold, albeit subject to indexation as described above. The council also recognises that changes in the economy can have an adverse effect on land values, house completion rates and house sales. As such, the council is prepared to consider more flexible terms for the payment of developer contributions towards the provision of the new station.



Opencast Workings
Heights
215
Birkenshaw
Woodend Fm
Easter Whin
Drumtassie Burn
69
Blawhorn Moss
208
dismtd rly
Barbauchlaw Burn
Sch
Eastcraigs Hill
249
Drumbeg
ARMADALE
Standhill Wks
174
Cowdenhead
193
Bathville
Stonerigg
Craigs
Bedlormie Ho
Blackridge
PH
Westcraigs
Mus
Westrigg
188
185
Mus
67
Entryfoot
Mosshouse
Standhill Fm
Northrigg Fm
Netherhouses
Southrigg Fm
187
Torrance Fm
66
Loan Fm
Baads
Bogend Fm
235
Balgornie
Hill Fm
B 718
Hare Moss Wood
Netherton Fm
Blairmuckhill
M 8
Polkemmet Country Park
WHITBURN
CH
172
Greenrigg
Couch

Armadale Station Park & Ride

5.38 Network Rail, as part of the Airdrie to Bathgate rail project, has constructed a rail station at Armadale. The station includes a park and ride (P&R) facility, on the north side of the railway line, to serve the existing population of Armadale. This provides a car park of approximately 200 spaces. The LDP proposes new housing allocations in Armadale. A key component of the new allocations is the allocation of land for 2000 houses. The LDP requires developers in Armadale to contribute to additional park and ride facilities on the south side of the proposed railway line. This includes:

- land to be transferred to the council at nil cost for 150 car parking spaces will be safeguarded in the CDA masterplan, by the developers of the Trees farm area, adjacent to the southern side of the railway station; and
- financial contributions from developers to fund the construction of 120 spaces within this area.

5.39 The remaining land for 30 spaces requires to be safeguarded for longer term expansion until 2020, at which time the need for safeguarding will be reviewed.

5.40 The previous Supplementary Planning Guidance for developer contributions towards the park and ride facility indicted that 30 spaces were to be provided to support the employment proposals set out in the LDP, with 90 spaces to be provided to support proposed residential development. The LDP Proposed Plan Report of Examination removed the employment land allocation at south Armadale in favour of housing development whilst still requiring park and ride facilities. To accommodate the park and ride facility it is proposed that housing developers in the Armadale CDA provide financial contributions to fund the construction of 120 spaces within the park and ride area in addition to provision of land for the park and ride facility. The developer contributions will ensure that the southern park and ride facility will meet the needs of the new population arising from the development of the Armadale CDA.

5.41 Developers of land within 800 metres walking distance of the station will be exempt from financial contributions. Although the park and ride facilities will be adjacent to the station, residents within the 800 metre walking distance are presumed to walk to the station and not the park and ride facility, therefore the station is the best point from which to measure the 800 metres. A map illustrating the 800 metre walking distance is below. Contributing sites are set out in Table 10.

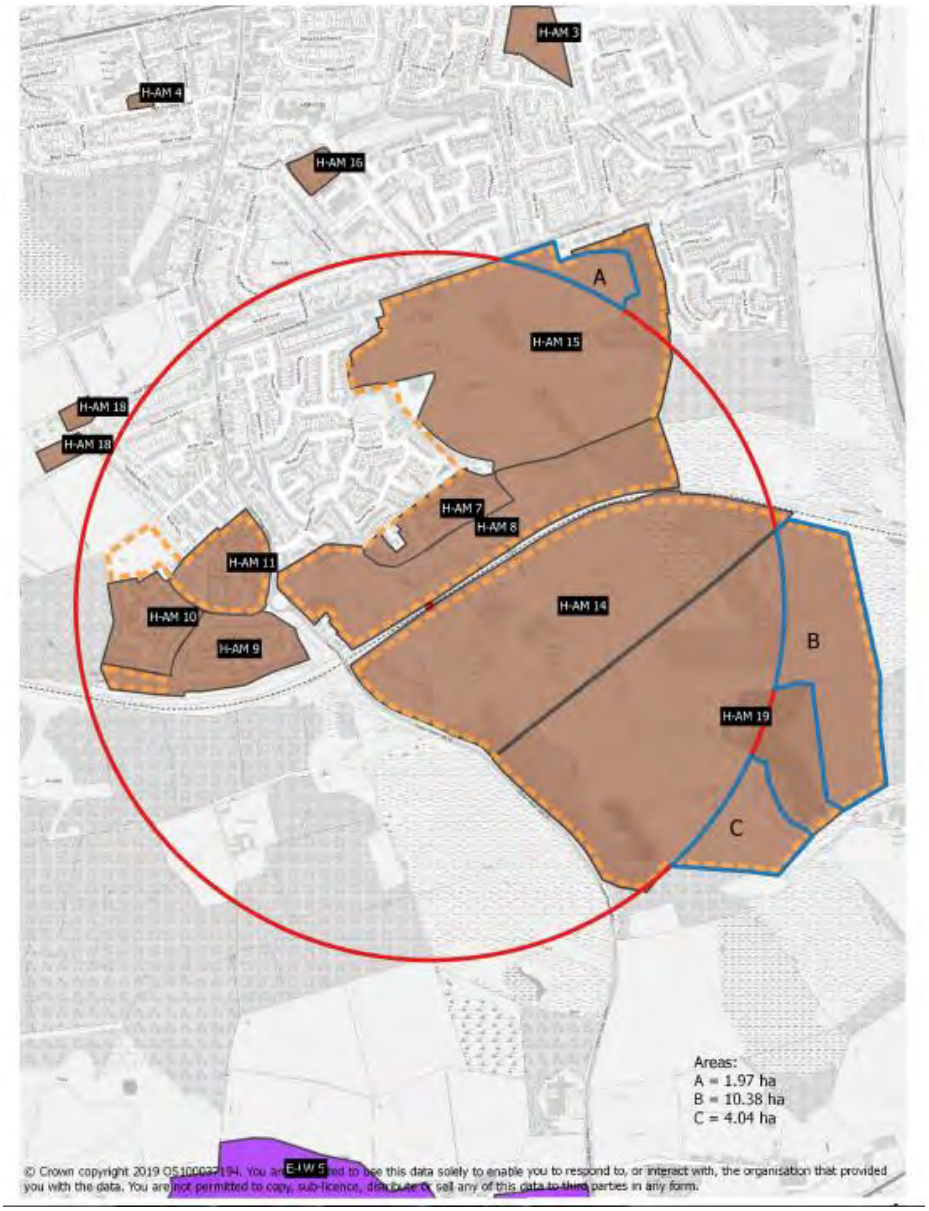


Table 10: Proposed Development Sites outwith 800 metre walking distance from Armadale Railway Station

Site Reference	Site Address	No. of units	Planning Status	Section 75 contribution
H-AM 1	Muirfield (North Street)	10	No consent	
H-AM 4	High Academy Street	6	No consent	
H-AM 5	Colinshiel(Site A)	135	No consent	-
H-AM 6	Colinshiel(Site B)	135	No consent	-
H-AM 12	Standhill (North)	300	Minded to grant	£136,800
H-AM 13	Standhill (South)	100	Approved	£45,600
H-AM 16	Mayfield Drive	22	Approved	£8,800
H-AM 17	Drove Road	26	No consent	-
H-AM 19	Tarrareoch Farm	100*	Approved	£106,000

**LDP allocation is 320 units, a proportion of which lie within 800 metre walking distance*

5.42 At 31 March 2019 no developer contributions towards Armadale Railway Station had been received by the council. Table 11 sets out the how the contributions have been calculated.

Table 11: Developer Contribution Rates for Park and Ride Facility at Armadale Rail Station

Cost per parking space x number of spaces*	Total Cost
£4,560 x 120 spaces	£547,200
£4,560 x 30 spaces	£136 800
	£684,000
Deduction from consented sites	£288,400

*indexed to fourth quarter 2017

5.43 Network Rail has delivered a railway station at Blackridge. This facility has been forward funded by the council. The council may wish to utilise some of the funding from the Standhill North and Standhill South sites (H-AM12 and H-AM 13), in the north west of Armadale, towards the cost of providing park and ride facilities at Blackridge Station, rather than at Armadale Station. The reason for having this option is that if it becomes clear that some of the Standhill residents are more likely to use Blackridge Station then it would be appropriate to use some of the contributions for an extension of the park and ride facility at Blackridge. The funding methodology for Blackridge Station and its associated works, including a park and ride facility is set out elsewhere in this SG.

M9 Junction 3 and Linlithgow

5.44 The LDP identifies a requirement for safeguarding of western slip roads at Junction 3 on the M9 at Linlithgow and a new four way junction at Duntarvie near Winchburgh.

5.45 The new 4 way junction at Duntarvie near Winchburgh has been provided at developer expense as part of the Winchburgh Core Development Area (CDA) development.

5.46 In relation to the western slip roads at Junction 3 on the M9 at Linlithgow, the LDP identifies development sites which will be required to contribute towards provision of the slip roads.

5.47 In addition to the provision of the western slip roads at Junction 3, there is also a need to address transport management measures which are required in Linlithgow town centre, specifically at the High Street/Blackness Road/High Port junction and the St Ninian's Road/High Street junction.

5.48 To inform this SG and developer contribution rates for Linlithgow transport infrastructure traffic modelling which was carried out to inform the LDP has been further refined and now looks at both the AM and PM periods. The modelling report is attached as Annex A. Traffic levels through the town are below saturation levels however additional factors regarding inappropriate parking, loading and unloading to businesses and busses stopping creating tailbacks are not helping vehicle movement.

5.49 Anticipated development sites in Linlithgow are set out in Tables 12 and 13. Sites identified in Table 12 which await development will be required to contribute towards junction improvements in Linlithgow as well as Junction 3 of the M9. Where windfall sites come forward these will also require to contribute.

Table 12: Proposed Housing Sites in Linlithgow

LDP Site Reference	Location	Site Size (Ha)	Capacity (Units)
H-LL 1	81-87 High Street	0.3	41
H-LL 2	Westerlea Court, Friarsbrae	0.3	12
H-LL 3	Boghall East	3.2	50
H-LL 4	Land east of Manse Road	1.2	25
H-LL 5	Falkirk Road (land at BSW Timber)	0.7	18
H-LL 7	Clarendon House, 30 Manse Road	2.6	8
H-LL 11	Wilcoxholm Farm/Pilgrims Hill	20.0	200
H-LL 12	Preston Farm	6.0	60
H-LL 13	Kettlestoun Mains	14.3	210

5.50 In making the decision to allocate land for housing in Linlithgow (see Table 12) the council anticipated that it would have transportation implications and hence the reason why a bespoke transport modelling exercise was commissioned to identify and mitigate them. In the event the modelling showed that the impact of development traffic on the Base network will be substantial, with higher average delays on the network as a whole. Some individual routes through Linlithgow are severely affected, in particular St Ninian's Road southbound and all routes using the Blackness Road / High Street / High Port junction.

5.51 The proposed network mitigation on its own does not allow the level of delay in the network to return to the same level as in the Base. The network mitigation does, however, allow the queues on St Ninian's Road southbound to dramatically improve. However, this tends to have a knock-on impact to delays on High Street and Preston Road. The roundabout at the junction of High Street/Mains Road becomes a pinch-point (especially as capacity is further constrained by the signalised pedestrian crossing to the east). Further improving the capacity of this area may prove difficult given the competing traffic flows in peak hour traffic and the offset nature of the junctions.

5.52 The proposed West Facing Slips (WFS) at J3 of M9 Motorway has the effect of removing a substantial amount of traffic from Linlithgow High Street, therefore the scenarios including west facing slips show improvements in network performance over the Do Nothing scenario.

5.53 The result of opening the west facing slips is to relieve Linlithgow town centre of through traffic to/from the east side of Linlithgow wishing to head towards Falkirk, Stirling and beyond. Traffic generation from the other developments to the west side of Linlithgow are now able to use this spare capacity such that there is no overall traffic change prior to carrying out the improvements.

5.54 Although the employment sites set out in Table 13 are also likely to generate trips impacting on the transport network, based on past take up of employment sites in Linlithgow it is considered unlikely that contributions would be forthcoming. Employment land allocations at Mill Road (sites E-LI 1 and E-LI 2) are largely built out; site E-LI 3 remains largely undeveloped. Should such sites come forward for development a contribution rate would be levied based upon trips generated.

Table 13: Proposed Employment Sites in Linlithgow

LDP Site Ref	Location	Site (Ha)	Size (X100m2)
E-LI 1	Mill Road Industrial Estate, Linlithgow Bridge (plot a)	0.6	18
E-LI 2	Mill Road Industrial Estate, Linlithgow Bridge (plot b)	1.31	39
E-LI 3	Land at Burghmuir, north of Blackness Road	9.6	288

5.55 To meet the requirements of Circular 3/2012 *'Planning Obligations and Good Neighbour Agreements'* those sites allocated for housing in the LDP (Table 12) should cumulatively contribute to the required mitigation works on a per unit basis. Table 12 identifies these sites. The cumulative number of units is 624. The cost estimate used for the western facing slips at Junction 3 of the M9 is £8,500,000 at second quarter 2019 prices. The junction improvements within Linlithgow town centre are estimated at £473,000. The total cost of transport improvements in the town is therefore £8,973,000. While this suggests a contribution figure per unit of £14,380 (£8,973,000/624 unit) there does nevertheless need to be an appreciation that some of these sites have already been the subject of planning consent, and for this reason they require to be discounted from the calculation. This has the effect of changing the arithmetic of the contribution to £8,973,000/563 units and thereby making the per unit contribution of £15,938 per house/flat. Any windfall sites will also be required to contribute. The calculation is set out in Table 14.

Table 14: Developer Contribution Rate for Transport Improvements in/around Linlithgow

LDP Site Ref	Location	Capacity (units)
H-LL 3	Boghall East	50
H-LL 4	Land east of Manse Road	25
H-LL 5	Falkirk Road (land at BSW Timber)	18
H-LL 11	Wilcoxholm Farm/Pilgrims Hill	200
H-LL 12	Preston Farm	60
H-LL 13	Kettlestoun Mains	210
Total Number of Units		563
Total Cost of transport improvements £8,973,000/563 = £15,938		

6.1 Policy TRAN 2 of the LDP requires developers to provide travel plans and an associated monitoring framework to support major new developments such as the previously identified Core Development Areas, strategic housing allocations and inward investment proposals. This is required in order to support and promote sustainable travel and is consistent with *Scottish Planning Policy 17 Planning for Transport*.

6.2 The contributions are to be secured through a Section 75 (or Section 69) agreement. The agreement will need to be concluded before planning permission can be granted. It is likely that developers will need to contribute to the cost of preparing legal agreements if delays are to be avoided.

6.3 The LDP includes proposals for some 25,000 houses and 638 hectares of employment land. Unrestrained, this scale of development will have significant effects of adding to congestion on the local transport network and have an adverse effect on the environment and health. Travel planning can help to mitigate the adverse effects of less sustainable travel through the promotion of better use of the most sustainable modes of transport. Any reduction in travel, or improvement in the mode of travel, benefits the West Lothian transport network and the environment. Travel planning can play a part in increasing the efficiency of the local transport network. Residential developments will be required to produce a *Sustainable Travel Information Pack* (IP) to be provided in each new home. The contents of the pack will be site specific and should be integrated with wider information on local amenities and services. The pack is to be produced by the developer and requires council approval as part of planning consent.

6.4 Employment developments will be required to submit a *Staff Travel Plan* (TP) as part of a transport assessment (or transport statement) in support of their planning application. Exemptions will be made for small developments, which do not require a transport assessment or transport statement. Developers should contact the council at the pre application stage to seek guidance on the contents of the travel plan and the requirements for a transport assessment or transport statement.

6.5 The types of development requiring a travel plan or travel information pack are set out in Table 15.

Table 15: Class Use, Information Types and Contribution Levels

Development Type	Travel Plan	Travel Information Pack
Residential <10 dwellings IP No	√	n/a
Residential 10 or more dwellings IP and TP ~~£20 per dwelling~~	√	√
Business (Use Class 4)	√	
Industrial (Use Class 5)	√	
Storage and distribution (Use Class 6)	√	

6.6 The contribution required by employment developments will be the lower of the two methods of calculation. The council will monitor the level of contribution and revise if appropriate.

6.7 The travel information pack and Travel Plan should include information on the location of local services and amenities and provide information of the options for travel to and from the development and should emphasise the need to travel by the most sustainable practical mode.

6.8 Priority should be given to the modes in the following sustainable travel hierarchy:

(i) Fuel free modes: walking and cycling
(ii) Fuel efficient modes: public transport
(iii) Efficient use: car sharing
(iv) Most polluting: single occupancy car

6.9 For residential developments, planning permission will be conditional on the submission of an acceptable travel information pack. Developers will be required to regularly monitor and revise travel information packs and travel plans.

7.1 The council recognises that funds received through the planning obligations process need to be clearly linked to the provision of specific pieces of infrastructure. To provide this clarity the council has set up a financial tracker to monitor the source of funds, the purpose for which they are gathered, and how they are spent; and in which transportation, education, greenspace, public art and employment land contributions will be kept and ring fenced for the delivery of infrastructure in related geographical areas.

7.2 The costs identified within the SG will be subject to review on an annual basis, through the LDP Action Programme. These costs will be index linked against the Building Cost Information Service (BCIS) or similar comparable industry standards and subject to independent verification where necessary.

7.3 In some instances, planning contributions will be in the form of infrastructure provided directly by a developer e.g. junction improvements to accommodate access to development sites or transport infrastructure required as part of the core development areas. Direct provision will be factored into the overall contributions that a site will make and where appropriate, this may be offset against total costs of the infrastructure project. Where direct provision of infrastructure is required, bonds or other legal security will also be agreed to safeguard the council from risk.

7.4 In most instances a developer will not be required to provide a piece of strategic infrastructure directly but will contribute in line with Table 1 of this SG. There may be instances where infrastructure is required in advance of all developer contributions having been received by the council. Where this is the case alternative funding options may be investigated – these include City Deal and input through the council's capital programme. In these situations, contributions will continue to be sought from developers to meet the full cost of the infrastructure which has been provided. This approach is consistent with paragraphs 17 – 17 of Circular 3/2012.

7.5 Developer contributions will be calculated on the basis of whole sites identified in the Local Development Plan. Applications for parts of allocated sites will pay a proportion of the total site contributions. This SG will not be applied retrospectively to sites which have full planning permission or planning permission in principle, provided that the permission remains capable of being implemented. New planning applications, for similar developments on these sites (including applications for renewal of planning permissions), will be subject to the provisions of this guidance and to LDP policies.

7.6 Over the lifetime of the LDP developers/landowners are likely to seek planning permission for sites not allocated in the LDP - such sites are known as windfall sites. The impact of these sites will not have been considered in any capacity assessments which determine the need for improved or additional infrastructure. Non-exempt windfall sites will be required to provide developer contributions towards transport infrastructure as set out in this SG.

Unilateral Undertakings

7.7 Section 76 (1) (b) of the Town and Country Planning Act (Scotland) 2006, as amended, allows developers to enter into unilateral agreements to make an appropriate contribution in relation to the impact of their proposals. Where a unilateral undertaking is in place, unless it makes provision

for all the infrastructure impacts of the proposed development, the need for any additional contributions to meet the requirements set out in this guidance will be secured through a planning obligation.

Viability

7.8 Developers may consider that the economics of the development and requirements for planning obligations will be greater than a development is able to bear and look to alter the levels of developer contributions required. Any assessment in this respect must be supported by a development appraisal which the council, through the District Valuer, or another independent chartered valuation surveyor agreed by the council, will verify. This appraisal requires to be funded by the developer/applicant. The council will also require documentary evidence necessitating "open-book accounting" to show the viability of a proposal will be curtailed by the requirement for planning obligations. If a development appraisal shows that a site is not viable the council may elect to review developer obligations and consider a degree of 'prioritisation'. However, in the event of a development being assessed as unviable the council will consider all the options which will include refusal of the application due to its inability to fund the required levels of infrastructure.

Repayment of Contributions

7.9 In some instances the need or level of a contribution may change over time. This may be for a number of reasons including the cost of the infrastructure changing, the level of contributing development altering or the infrastructure, for which the obligations were originally gathered, no longer being required. In these instances the council may recalculate the level of obligations and apply or refund any difference to the per house contribution. It will also be the responsibility of the council to use the obligations for their intended purpose and within the timescale set by any related legal agreements. If the council does not use the contributions within the specified timescales then the obligations will be returned to those who made the contribution.

7.10 The approach ensures that this SG requires proposed development to make an equitable and reasonable contribution to strategic transport improvements with costs apportioned relative to the location of development and probable additional impact on strategic infrastructure. Local measures will be identified in site specific Transport Assessments prepared by site promoters.

7.11 Proposed sustainable transport measures to promote the use of public transport, including improved walking and cycling routes to railway stations, will be expected to be included with planning applications and their supporting Transport Assessments. These measures will be directly funded by developers.

Audit and Review Procedures

7.12 This SG will be reviewed and updated periodically to ensure that the level of contribution being required of developers remains relevant and takes account of changing circumstances. This will include updating contributions to take account of the BCIS All-in Tender Price Index.

7.13 The council, upon recouping all costs associated with the construction of the new station, will no longer apply this SG in relation to future development proposals.

Appendix One

Developer Contributions Towards Transport Infrastructure

A801 between M8 Junction 4 and A89 Roundabout

Introduction

1. The A801 traverses West Lothian in a north/south direction connecting central West Lothian to Falkirk/Grangemouth. Planning permission has been approved for a new Avon Gorge bridge crossing and this is partially funded. West Lothian and Falkirk councils continue to seek funding contribution from the Scottish Government for construction of the bridge crossing. A new bridge crossing and associated local improvements will improve the connectivity of the strategic route between the M9 and M8 motorway networks thus improving the overall resilience of the Central Belt. The new crossing will also create improved accessibility opportunities and local links to the Avon Valley Heritage Trail.

2. The West Lothian Local Development Plan (LDP) includes planned development sites that will impact on the A801 at its southern end linking with the M8. The LDP includes land within the previously identified Core Development Area allocation at Armadale, the employment sites at Pottishaw/ Riddochhill and further afield at Polkemmet and Cowhill. Until recently, the council had in place Supplementary Planning Guidance which outlined the need for developer funding contributions for dualling the A801 from the M8 motorway at Junction 4 northward to the proposed new junction and new Southdale development road, Armadale. The Supplementary Planning Guidance requires to be updated as part of the LDP approval from Scottish Government.

3. The Reporter in his findings in the LDP Examination Report concluded the requirement to upgrade the A801 had been established in the West Lothian Local Plan (2009) and that the 'technical note' submitted by the Southdale Developers and considered at the LDP Examination appeared to indicate that, if all of the committed development was built, this section of the A801 would be over capacity and would still require upgrading. However, the 'technical note' concluded that the upgrading of the A801 was not required on the basis of the level of committed development that remained to be built out. This conclusion was not accepted by the Reporter and as a result the Reporter maintained the requirement for the upgrading of the A801 as contained in the LDP Proposed Plan.

4. The LDP Examination report confirmed that the Supplementary Planning Guidance *A801 Dualling: M8 Junction 4 to Pottishaw Roundabout Development Contributions* (2010) was out of date and not an appropriate basis on which to consider the need for developer contributions. The Reporter modified the LDP Proposed Plan to include the requirement for the preparation of supplementary guidance for the developer contributions towards this road corridor.

Method

5. The A801 dualling improvements were first identified in 2006 using the traffic modelling data which informed the West Lothian Local Plan 2009 (WLLP). The traffic modelling method used to determine the impact of planned (new) development on the existing road network required developers to take existing traffic flows, then add any committed developments that were anticipated to have an impact on the surrounding roads and finally add the proposed

development together. This information was then used to predict traffic flow and turning counts. Tables 1,2 and 3 below show the differences overtime of the:

- observed traffic flows;
- amount of predicted traffic to be added to the network; and
- estimated traffic levels on completion of all the developments at the time within the WLLP.

6. The WLLP traffic modelling identified overcapacity issues along the A801 section from M8 to Pottishaw roundabout. This was based on an accepted lane flow level of 1800 vehicles per direction for peak hour link flow capacity. The WLLP was subsequently replaced by the LDP.

7. The following tables show the existing traffic, the committed traffic from developments either with planning permission but not completed construction and a cumulative total of predicted traffic flows. The route sections of the A801 from the motorway is split down into 3 sections due to the traffic flow levels entering / exiting J4M8 distribution park. The Pottishaw roundabout takes flows to and from Bathgate and also can be used westward as a route to the west side of Armadale.

Table 1: Observed Existing Traffic Flows

	Year	Northbound		Southbound	
		AM	PM	AM	PM
South Armadale CDA Site Access	2009	836	1116	937	758
	2014	390	480	643	602
	2018	735	997	852	709
Pottishaw Roundabout	2009	1071	907	866	941
to J4M8 Employment	2014	516	539	712	592
	2018	822	741	772	835
North of J4M8 Motorway	2009	1102	894	911	984
	2014	642	493	596	722
	2018	963	778	761	912

8. As shown in the Table 1 above traffic levels dropped dramatically around 2014 but have subsequently recovered. However, these are still short of 2009 flow levels. Various ideas have been considered as why traffic levels are not as high as back in 2009. In transportation terms the most likely reason appears to be the opening of the Airdrie to Bathgate rail link in 2010. This opened up new stations in Armadale and Blackridge which give opportunity for a more sustainable travel option over the car. Other influences that may have impacted include the opening of the M8 Heartlands junction, general changes in travel and commuting behaviour. Further evidence is given later in this document.

9. When investigating the impact of a development, it is usual practice to include committed developments (if any) around the application site. The applications of most interest are those which have a traffic impact affecting the area of influence of the site being considered. A

committed development is a site where a planning application has been submitted by the developer and has received planning approval from the local council but no work has started.

10. Table 2 shows the additional trips from committed development sites at the time which have been given planning permission but not complete. They are required to be included in the assessment for the Southdale development. The 2009 additional flows were totalled from each site in the WLLP that had an influence on this section of A801 and had a transport assessment carried out. The 2018 flows have been calculated from first principles by the appellant.

Table 2: Predicted Traffic from Developments within the LDP Still to be Built

	Year	Northbound		Southbound	
		AM	PM	AM	PM
South Armadale CDA Site Access	2009	478	503	360	627
	2018	511	624	827	517
Pottishaw Roundabout	2009	1133	764	696	1199
to J4M8 Employment	2018	509	629	851	514
North of J4M8 Motorway	2009	1465	737	750	1573
	2018	576	552	765	584

11. A different more robust method which uses a gravity model was used to calculate the 2018 committed development flows. The gravity model takes population of towns and cities as a draw factor. A mathematical formula is used to calculate the draw factor of each area for the housing development in question. Table 3 is the addition of Tables 1 & 2.

Table 3: Predicted Traffic Levels after all Development in the LDP is Built Out

	Year	Northbound		Southbound	
		AM	PM	AM	PM
South Armadale CDA	2009	1314	1619	1297	1385
Site Access	2018	901	1104	1470	1119
Pottishaw Roundabout	2009	2204	1671	1562	2140
to J4M8 Employment	2018	1331	1370	1623	1349
North of J4M8 Motorway	2009	2567	1631	1661	2557
	2018	1539	1330	1526	1496

12. The traffic levels in Table 3 show a significant lowering of predicted traffic levels for the A801 covered by the proposed dualling. It should be remembered that the maximum vehicle capacity of a single carriageway is 1800 in each direction.

13. The 2009 WLLP predicted traffic levels used committed flows from live planning applications. However, the 2018 predicted traffic levels were calculated from existing traffic counts and all developments in LDP. The table shows that in 2009 predicted traffic levels indicated the need for the A801 to be dualled.

14. On the basis that there were numerous planning applications that would impact on the A801 towards the M8, it was considered appropriate for the council to secure contributions, from applicants, based on traffic impacts of each application. As without the developments predicted traffic levels could be accommodated. In doing so a funding would be built-up to enable the dualling to be delivered at an appropriate time.

The influence of Rail Patronage on the A801 Corridor

15. As indicated earlier the most likely reason for less road traffic is the reopening of the Airdrie – Bathgate railway line 2011. With services running every 15mins at Bathgate and 30mins at Armadale and Blackridge the passenger numbers show a large amount of usage which may have supressed predicted traffic levels on the A801 corridor and surrounding area. Table 4 shows the rail regulator statistics for the last 10 years since the opening of the Airdrie to Bathgate section. Patronage numbers are on the increase at all three stations. Remember that Armadale and Blackridge are both new since the 2009 traffic survey so all are new passengers. Bathgate has doubled its passenger numbers and over the years. Bathgate is now among the busiest stations in Scotland outwith the cities, while Armadale and Blackridge stations have a steady patronage increasing year on year.

Table 4: Office of Rail Regulator Statistics

		Passenger numbers yearly entry/exit				
Station	2009/10	2010/11	2011/12	2012/13	2017/18	2018/19
Bathgate	616,472	844,962	941,333	1,033,734	1,282,136	1,292,360
Armadale	0	89,288	130,061	152,776	249,778	260,082
Blackridge	0	40,008	40,361	40,877	58,030	59,780

Planning Challenge

16. On 22 November 2010 planning permission in principle (1044/P/08) was granted for a mixed-use development including residential, commercial, retail, school and leisure facilities together with associated infrastructure and open space provision at Southdale, Armadale. Since then Matters Specified in Condition (MSC) applications have been submitted to the council and approved with around 500 houses, a supermarket, nursery, primary school and some employment land having been provided.

17. Earlier this year (2020) following refusal by the council to allow the Southdale developers removal of two conditions relating to the original outline approval which involved developer contributions (1044/P/08), the council's decision was the subject of an Appeal to Scottish Ministers claiming that the dualling of the A801 between M8 Junction 4 and the Pottishaw Roundabout is no longer justified and as such does not meet the tests of Scottish Government Circular 3/2012 "*Planning Obligations and Good Neighbour Agreements*". Consequently, the requirement for financial

contributions set out in the planning obligation should be discharged. This was on the grounds that, due to changes in circumstance, the predicted level of impact on the road network from developments within the contribution catchment area would not occur.

18. The LDP's accompanying Action Programme (2019) does not include the dualling of the A801 as a specific key infrastructure project. As such there are no specific details for the project, as required by policy CDA 1, in terms of the timescale for delivery, breakdown of costs or who would be the lead partner. The only reference in the Action Programme relates to the requirement for housing sites within the former Armadale Core Development Area to make financial contributions towards the dualling of the A801. Therefore, the Reporter, in determining the Appeal, found that the Action Programme did not provide the specific details required by policy CDA1 and provided no indication of the priority being given by the council to the delivery of the upgrades to the A801. Notwithstanding the lack of detail in the Action Programme the Reporter noted that policy INF 1 advised that all requirements for developer contributions, relating to the identified infrastructure projects, will need to meet the tests in Circular 3/2012.

19. The Reporter at LDP Examination modified the LDP Proposed Plan to include the requirement for the preparation of supplementary guidance for developer contributions towards the A801. The council published the draft supplementary guidance and completed the public consultation exercise in December 2019. The council confirmed that the draft Supplementary Guidance was prepared on the basis of the original traffic modelling work from 2005 used to inform the non-statutory supplementary planning guidance (2010). In determining the Appeal against the council's decision to refuse the removal of 2 conditions relating to the original outline approval which involved developer contributions (1044/P/08), the Reporter accepted argument put forward by the Southdale developer that the council's assessment used to inform the draft Supplementary Guidance (2019) does not account for the changes in circumstance within the catchment area.

20. The Reporter noted that 1800 vehicles peak hour capacity assumption used for the corridor analysis was accepted and relied on by the council to justify the inclusion of the requirement to upgrade the A801 in the adopted LDP and the draft supplementary guidance (2019). Whilst the council in its evidence now considers the corridor analysis to be too simplistic, it does not dispute any of the data (levels of committed and predicted development) or assumptions (trip generation) presented by the appellant during the Appeal. Rather the council simply argued that its alternative approach using Transport Scotland's (managed by Highways England) Design Manual for Roads and Bridges (DMRB) and the Cost Benefit Analysis Tool, produced by Highways England (COBA) provides a more accurate assessment of the capacity of the road network. The council was satisfied with the assumption of 1800 vehicle capacity until the request to modify the planning obligation.

21. In determining the Appeal against the council's decision to refuse the removal of two conditions relating to the original outline approval for Southdale the Reporter found that given the council's previous acceptance of the capacity assumption and that it had not questioned the data and assumptions in the current corridor analysis, the assessment even if somewhat simplified, provided at least a broad estimate of what the impact from development on the A801 would be.

22. The corridor analysis has two scenarios showing what the Southdale developer considers to be a realistic scenario (1419 peak trips) and then a worst-case scenario (1679 peak trips) for sensitivity testing. The appellant's report highlights that the analysis demonstrates that even in a worst-case scenario the accepted capacity (1800 threshold capacity) of the A801 as a single carriageway road would not be breached. The report concludes that these findings demonstrate

that, there is no current requirement to dual the A801 as a result of the cumulative impact from future development within the catchment area. In light of this the planning obligation requirement for A801 contributions no longer meets the necessity test. The findings from the corridor analysis indicate that there would be spare capacity remaining in the existing road network (based on the 1800 capacity figure) of 20% in the realistic case scenario and 7% in the worst-case scenario. Therefore, despite the council's claim that the methodology used by the appellant is too simplistic the Reporter found that there was scope to accommodate a margin for error in the Southdale developer's analysis and for the A801 still to remain within the threshold capacity notwithstanding proposed development.

23. The council now considers that the Reporter's findings clearly identify the current position in relation to predicted traffic levels and that for the time being there is no requirement to require developers to provide a link capacity improvement for the A801, i.e. dualling. However, the council is not diverting away from its original position in that infrastructure requirements due to developments will still be required.

24. As a result of not pursuing the developer contribution for dualling a section of A801 from the M8 motorway northward, there will be a requirement for the Pottishaw roundabout to be assessed for capacity issues for each of the proposed developments identified in the LDP which will require a transportation assessment to be submitted alongside planning applications for future development. Requirements for a transportation assessment are set out in Scottish Government guidance.https://www.transport.gov.scot/media/4589/planning_reform_-_dpmtag_-_development_management__dpmtag_ref__17__-_transport_assessment_guidance_final_-_june_2012.pdf

25. The transportation assessments and associated planning applications will be assessed on an individual basis. In reviewing the assessments, capacity issues may be identified with solutions being considered and approved by the council where necessary. Capacities and link flows will be measured at the time of any future planning application which has a direct impact on this section of the road infrastructure.

26. The document produced by the Southdale developer will be used as a basis for any future link flow capacity assessment. Developers will still be required to carry out junction assessments and mitigate their development impact. This assessment will be reviewed in 2023.

CONCLUSION

27. The requirement for developer contributions towards dualling of the A801 cannot be justified at this time. Contributions will be required to mitigate impacts arising from individual developments on the Pottishaw roundabout and will be determined on a case by case basis. The council's position will be reviewed at a later date.

ANNEXE A

LINLITHGOW MODEL DEVELOPMENT TESTING

West Lothian Council

SYSTRA

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1. INTRODUCTION

1.1.1 This note details analysis of various development and network scenarios coded and assigned to the Linlithgow Vissim model. This model was recently updated and recalibrated as detailed in "20190108_Linlithgow_VISSIM_Model_Report.pdf". As such the base model used for the scenario testing has robust representations of the AM and PM peak periods for the 2018 base year.

1.1.2 SYSTRA has developed two basic forecast year scenarios which continue from seven previous scenarios assessed in previous work (using the 2015 version of the Linlithgow Vissim model):

- Scenario 8 – modelling of all LDP housing sites in Linlithgow as set out in Table 1 (proposed housing sites), Table 2 (employment sites) and including the proposed M9 J3 Westbound facing slips.
- Scenario 9 – based on Scenario 8 above but with the addition of the Bo'Ness housing site in Falkirk Council area as listed in Table 3. Trip generation is derived from TRICS and mode choice from 2011 Census for Bo'Ness.

1.1.3 In each case, the maximum development size was used so that the scenarios represented the worst-case traffic impact.

Table 1. West Lothian Local Development Plan – Proposed Housing Sites in Linlithgow

LDP SITE REFERENCE	LOCATION	SITE SIZE (HA)	CAPACITY (UNITS)
H-LL 1	81-87 High Street	0.3	41
H-LL 2	Westerlea Court, Friarsbrae	0.3	12
H-LL 3	Boghall East	3.2	50
H-LL 4	Land east of Manse Road	1.2	25
H-LL 5	Falkirk Road (land at BSW Timber)	0.7	18
H-LL 7	Clarendon House, 30 Manse Road	2.6	8
H-LL 11	Wilcoxholm Farm/Pilgrims Hill	20.0	200
H-LL 12	Preston Farm	6.0	60
H-LL 13	Kettlestoun Mains	14.3	210

Table 2. West Lothian Local Development Plan – Proposed Employment Sites in Linlithgow

LDP SITE REF	LOCATION	SITE	SIZE (X100M^2)
E-LL 1	Mill Road Industrial Estate, Linlithgow Bridge	0.6	5
E-LL 2	Land at Burghmuir, north of Blackness Road	9.6	6

Table 3. West Lothian Local Development Plan – Other Proposed Developments in Linlithgow

COUNCIL SITE REF	LOCATION	CAPACITY (UNITS)
HO1-LDP1	Drum Farm	183
HO2-LDP1	Kinglass Farm	160
HO3-LDP1	Kinglass Farm 2 (Off Drum Rd)	25
MO1-LDP1	Boness Foreshore	750
102-LDP2	Crawfield Road	450
103-LDP2	North Bank Farm	200
104-LDP2	Carrieden Brae North, Muirhouses	120
105-LDP2	East Muirhouses	120
106-LDP2	Dunacre Road	28

1.1.4 Note that the M9 J3 Westbound facing slips are based on the latest proposal (provided by WLC) which indicates the use of roundabouts as means of access to the existing road network.

1.1.5 The scenarios detailed above have variants with and without the west facing slips at M9 J3, these have the naming convention 8b and 9b. This naming convention has been chosen to differentiate the above scenarios from previous modelling work.

1.1.6 The methodology is as per previous modelling in test scenarios (1-7) for the M9 J3 west facing slips for those sites that are located in Linlithgow and to the south. For reference, this methodology, extracted from our proposal, is documented below:

- The original model does not contain any traffic interaction on the M9 as it was not part of the original scope. As we will be modelling west facing slips onto the M9, we will not be able to monitor the merge point located on the M9 ramp. In other words, this project cannot measure the impact of any scenario on the operation of the M9; and
- It is our intention to estimate the level of traffic associated with the new the M9 Junction 3 layout by amending the traffic patterns already contained within the development scenarios. A common-sense approach will be undertaken to enable traffic only associated with certain zones to be allowed to use the new junction setup, for example, it is anticipated that development traffic located to the west of

Linlithgow will not route through the town centre to access the westbound on-slips to travel west.

1.1.7 With regards to the Bo'Ness housing sites, SYSTRA have undertaken a more detailed evaluation of the trip distribution using TRICS. The TRICS database provides an indication of typical multi-modal trip rates for residential developments of this nature. These rates are then used to further refine the modal split assumption and to determine locally specific origin / destination patterns.

2. DEMAND SCENARIOS

2.1.1 The TRICS database was used to determine the level of car usage associated with the housing locations. Average trip rates were obtained for the AM and PM Peaks as shown in the tables below.

Table 4. Residential trip rates

PERIOD	MODE	CENSUS MODAL SPLIT PERCENTAGE	TRIP RATE (PER DWELLING)
AM	Car/Van	67%	0.848
PM	Car/Van	67%	1.013

Table 5. Industrial employment trip rates

PERIOD	MODE	TRIP RATE (PER 100 M^2)
AM	Car/Van	0.571
PM	Car/Van	0.438

Table 6. Business park employment trip rates

PERIOD	MODE	TRIP RATE (PER 100 M^2)
AM	Car/Van	1.247
PM	Car/Van	0.939

2.1.2 The trip pattern of the new development sites is based on an existing trip pattern of a similar area within the model, using the existing zone loading points. Trips from the new development sites are assessed to determine their loading points onto the network and added to the existing model matrices.

2.1.3 Table 6 below provides an indication of the total number of trips loaded onto the network as a result of the development scenarios

Table 7. Development Scenario Traffic Demand.

PERIOD	MODEL	MATRIX TOTALS (LIGHT VEHS)
AM	2017 Base	3,613
	Base + Full Dev Demand	6,284
	Base + Full Dev Demand - Bo'Ness	5,557
	WFS Base Demand + WFS Full Dev Demand	6,284
	WFS Base Demand + WFS Full Dev Demand – Bo'Ness	5,557
PM	2017 Base	4,252
	Base + Full Dev Demand	7,357
	Base + Full Dev Demand - Bo'Ness	6,669
	WFS Base Demand + WFS Full Dev Demand	7,357
	WFS Base Demand + WFS Full Dev Demand - Bo'Ness	6,669

2.1.4 For the full-development scenario the maximum size of development was used in each case. This included the large Bo'Ness development.

2.1.5 From the scenarios denoted "- Bo'Ness", trips from/to the Bo'Ness development were eliminated. This resulted in 727 fewer trips in the AM period and 688 fewer trips in the PM period.

2.1.6 On the introduction of the West Facing Slips (WFS) at M9 J3 we have assumed that all trips which currently go from the east of Linlithgow to the west (leaving the modelled area on the A803) will now use the WFS. This is illustrated in Figure 1 where the zones within the blue catchment area and going to / from the red circled zone will instead use the WFS (green circle). The WFS are represented by zone 56 (to M9) and zone 57 (from M9).

2.1.7 The change to the demand matrices representing the WFS scenario affects around 90-140 trips in the peak hours (in each direction and including development trips). Effectively, this scenario reroutes upwards of 200 vehicles / hour from Linlithgow High St for the full-development scenario.

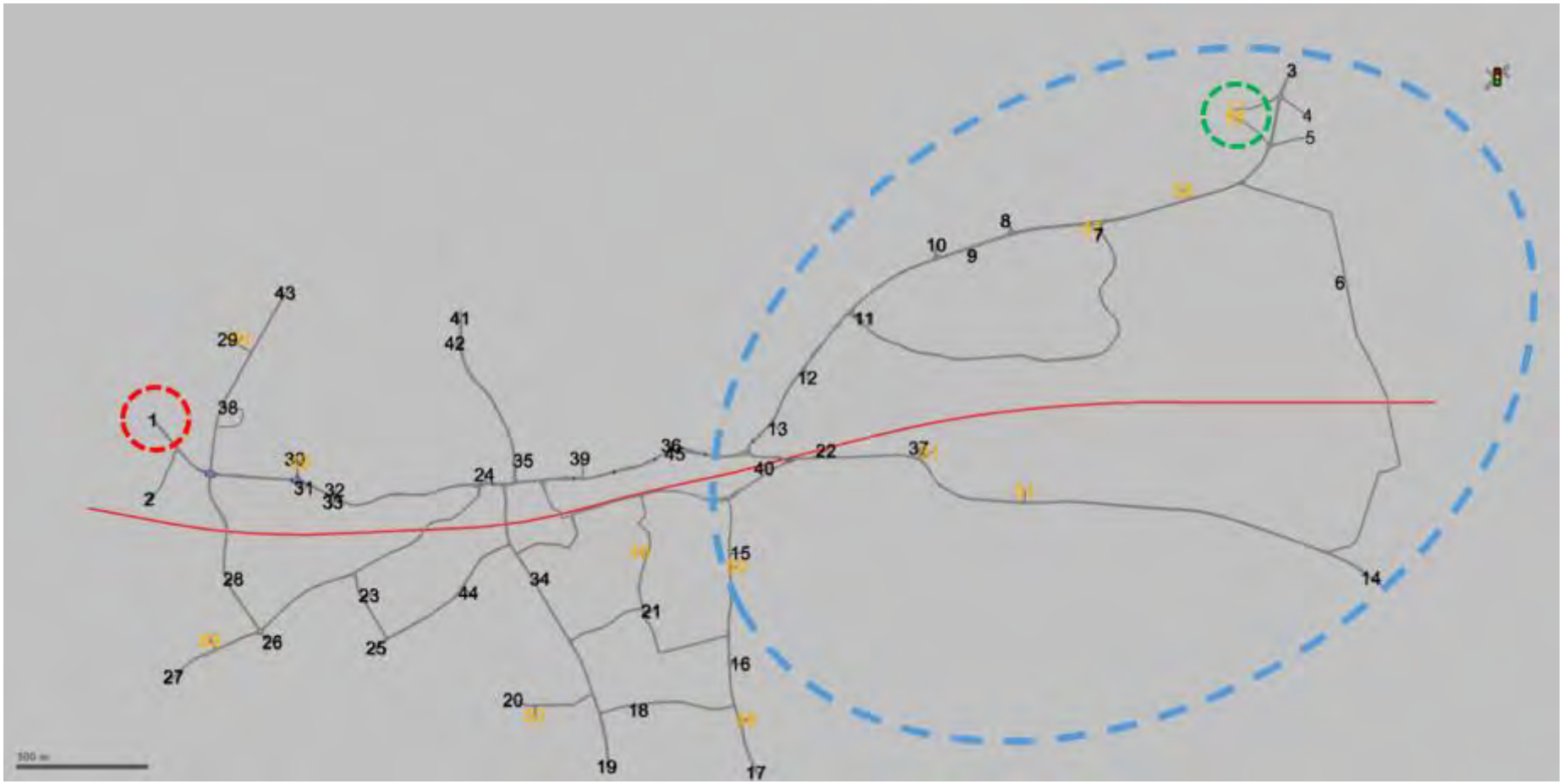

Figure 1. WFS Demand modification (blue = WFS catchment zones, red = original origin / destination zone, green = new WFS zones)

3. WFS SCHEME LAYOUT

3.1 Vissim Network Changes

3.1.1 Figure 2 below shows the M9 J3 West Facing Slips (WFS) proposal received from West Lothian Council in early 2019. The design consists of two new roundabouts which tie in with the existing east facing slips.

3.1.2 Figure 3 shows the equivalent section of the Linlithgow Vissim model with the WFS coded. The M9 itself and the slips' interaction with the M9 are not included in the model.

3.1.3 **SYSTRA have completed a feasibility costing for the proposed WFS.** Please note that what we have completed is an extremely high-level cost estimate, which is based on our recent experience of developing high-level cost estimates for different Grade Separated Junction (GSJ) layout options for a potential GSJ on the Scottish trunk road network. Therefore, once more information is available a more robust cost estimate will require to be undertaken to establish accurate construction costs. The anticipated costs are as follows:

Cost Estimate

- Eastbound diverge and westbound merge: £7.5M
- Roundabouts (x2): £1.0M
- Total: £8.5M

3.1.4 Rather than providing a single cost estimate we believe that it is prudent to provide a cost range. Therefore, please assume that the cost range for construction of the eastbound diverge and westbound merge plus the two roundabouts is **£6.5M to £10.5M**.

Assumptions & Exclusions

- This cost estimate only covers the **construction costs** associated with the junction i.e. other costs such as design costs (inc. costs associated with design work such as the acquisition of a topographical survey, costs associated with a ground investigation, etc.) and site supervision costs are not included;
- No work to the existing overbridge across the M9 or to the existing eastbound merge and westbound diverge are necessary;
- The underlying ground is suitable for construction of the eastbound diverge and westbound merge i.e. there will be no requirement to excavate unsuitable material and replace with suitable backfill material prior to construction of the diverge and merge;
- The presence of any existing Public Utilities apparatus within the footprint of the works is not known at this time and therefore a nominal allowance is included in the above costs, the actual costs could vary significantly from this amount;
- Costs associated with land acquisition have been omitted;
- Costs associated with ecological and environmental mitigation measures have been omitted;

- Any connections to (and amendments to) the existing local road network, properties or farm accesses that may be required as a consequence of the works have not been included in this cost estimate; and
- It has been assumed that suitable drainage outfalls will be available on both sides of the M9 within the proximity of the works.

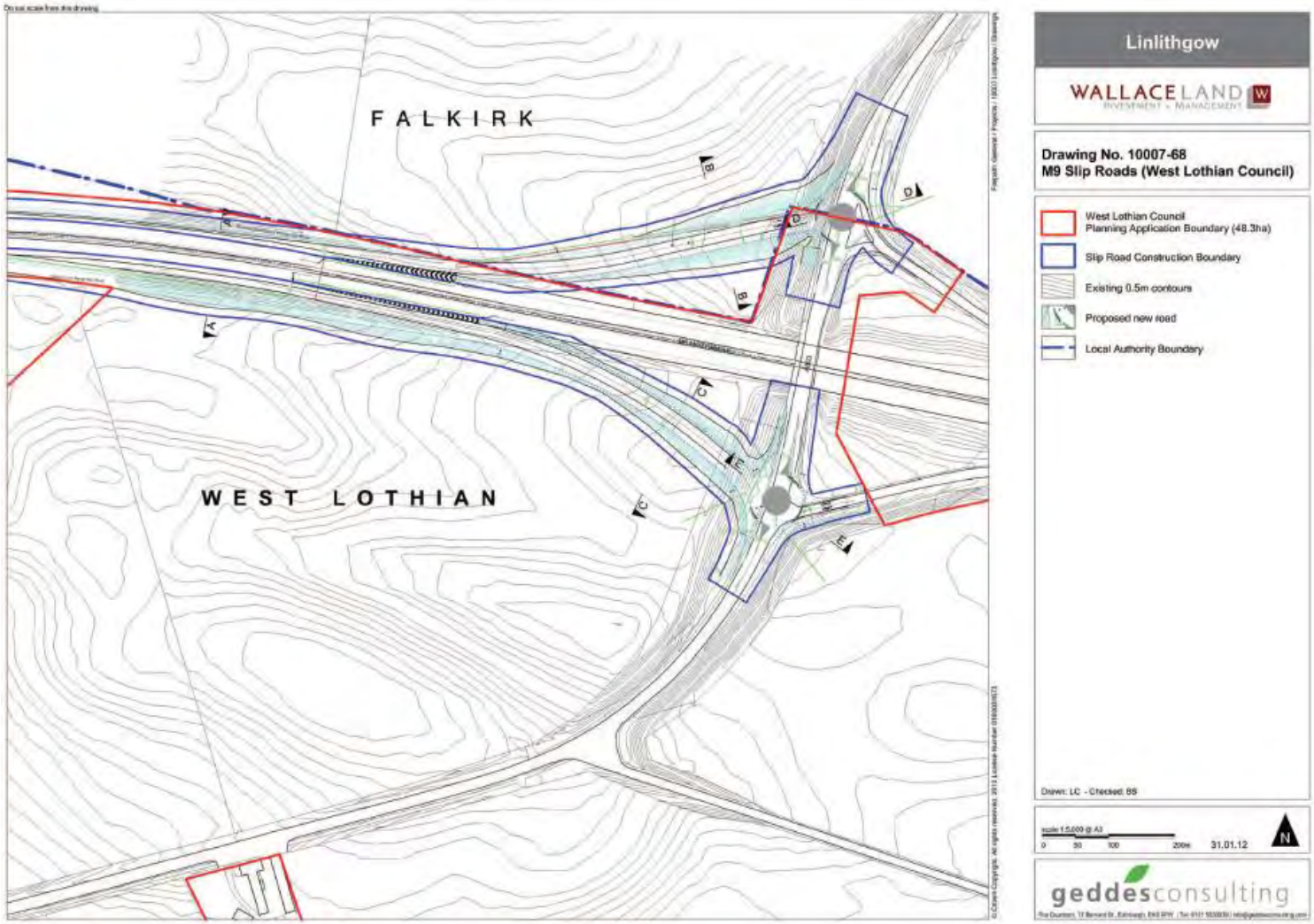

Figure 2. WFS Plan

Figure 3. WFS Network Changes

4. MITIGATION

4.1 Blackness Road / High Port / High Street

4.1.1 The existing roundabout at this junction can be the cause of blocking back from the High Port signalised junction as well as from the signalised pedestrian crossing on High St. As such, WLC requested that we evaluate the replacement of this roundabout with a fully signalized junction. An initial evaluation of the space available indicated that two lanes could be accommodated on all approaches. Replacing an existing roundabout with a signalised junction can sometimes lead to increased delay but does allow better balancing of the capacity for various approaches better pedestrian facilities and more reliable journey times.

4.1.2 To enhance the provision for pedestrians at this location (there are currently no zebra or signalised crossings on High Port or High St) and to address the clear pedestrian demand evident during our site-visit, we have coded an all-red traffic phase to allow for a "scramble" pedestrian crossing – i.e. allowing all pedestrian movements at the same time in the signal cycle.

4.1.3 The cycle time of the signals was matched to the existing signals at Back Station Road to allow the most robust vehicle progression through both junctions. The close-by pedestrian crossing on High St was also set to this cycle time to allow better traffic progression westbound along High St. The existing signalised crossing on Blackness Rd was removed.

4.1.4 Reduced speed areas representing the slowing of traffic due to School Crossing Patrol were also removed due to the introduction of signalised crossings.

4.1.5 Figure 4 shows the layout of this junction as coded in the Vissim model.

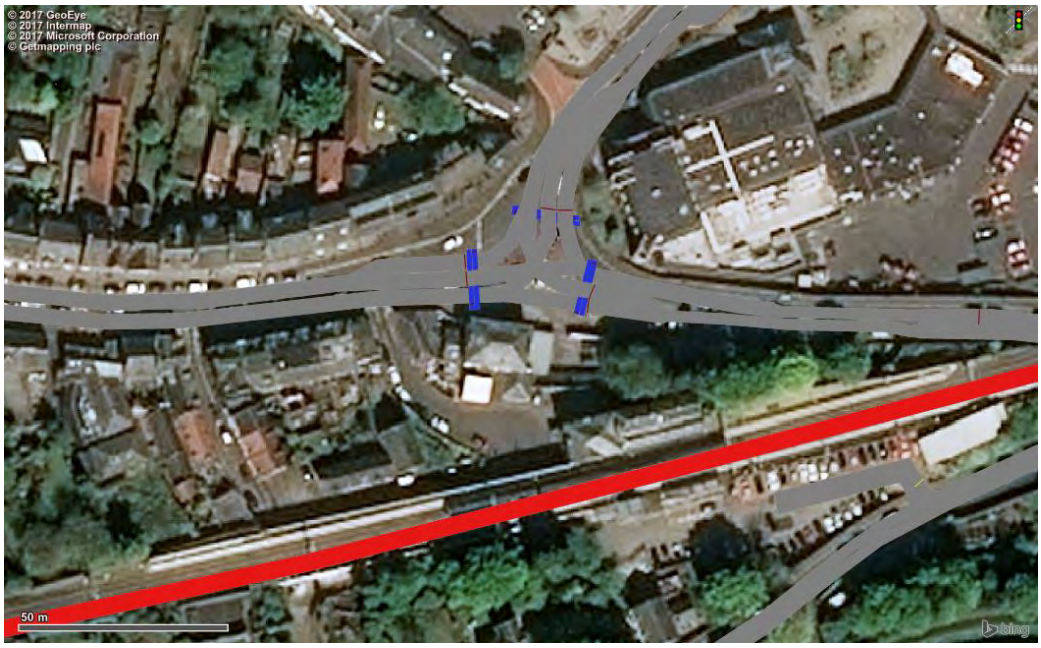

Figure 4. Blackness Rd signals

4.1.6 SYSTRA has calculated the approximate cost of the improvements at High St/Blackness Rd/High Port (roundabout to signalised junction) to be **£330k**.

4.1.7 This price is based on the following assumptions:

(a) Surface course replacement over extents of junction (planing off top 40mm and replacing), islands , ped crossing points for all-ways movement, new footways where there are changes to road areas, new bollards, new pedestrian guard-rails.

(b) Based upon no understanding of the presence or location of utilities, we have made no allowances for utilities protection or diversions, which could be significant.

(c) In terms of traffic management during construction, we have merely made allowance via 20% contingencies (we expect there will be high traffic management costs).

(d) Given that the junction is in an urban location and has existing road/footway we have assumed no allowance for earthworks/poor ground.

(e) Drainage allowances made for tying into existing drainage system with new gullies.

4.2 St Ninian's Road / High Street

4.2.1 To mitigate the queuing created by the development demand at this location, a mini-roundabout was coded at the junction of St Ninian's Rd / High St. This intervention enables priority to be given to right-turning traffic from St Ninian's and taken from High St westbound.

4.2.2 It was necessary to move the bus stop opposite St Ninian's Rd to the east of the junction to allow for two approach lanes. Keep clear areas were also coded to help prevent traffic queuing through the junction.

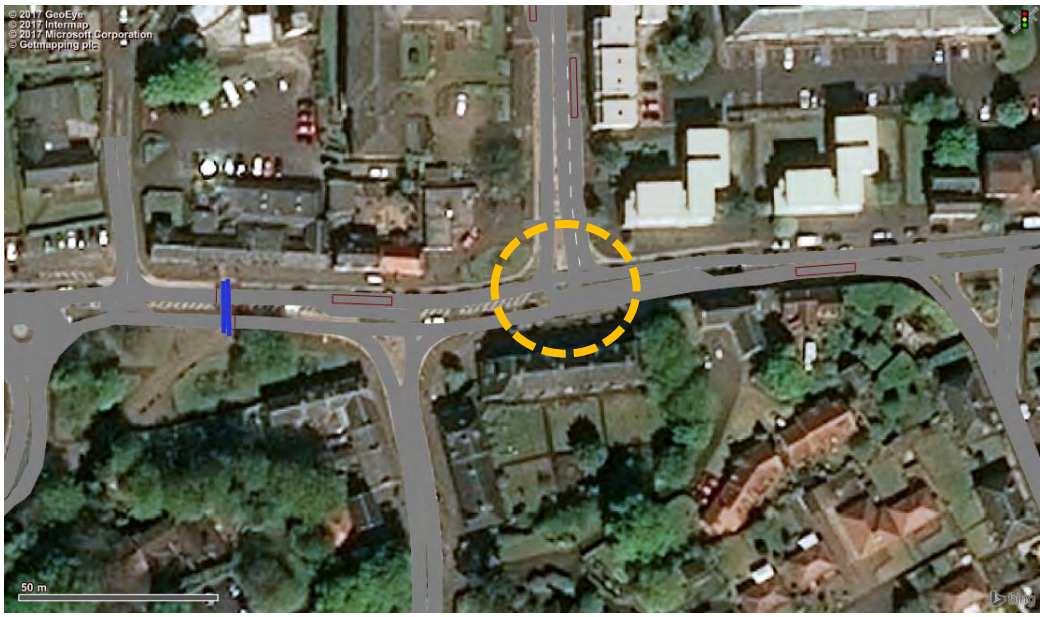

Figure 5. St Ninian's Road mini-roundabout

4.2.3 SYSTRA has calculated the approximate cost of the improvements at St Ninians Rd/High St (priority junction to mini-roundabout) to be **£143k**.

4.2.4 This price is based on the following assumptions:

(a) We have allowed for surface course replacement over the full extents of junction (planing off top 40mm and replacing), new islands, new footways where there are changes to road areas, new bollards, new pedestrian guard-rails.

(b) Based upon no understanding of the presence or location of utilities, we have made no allowances for utilities protection or diversions, which could be significant.

(c) In terms of traffic management during construction, we have merely made allowance via 20% contingencies (we expect there will be high traffic management costs).

(d) Given that the junction is in an urban location and has existing road/footway we have assumed no allowance for earthworks/poor ground.

(e) Drainage allowances made for tying into existing drainage system with new gullies.

4.3 Back Station Road / High Port

4.3.1 No physical mitigation is possible at this junction due to the constraints of railway and embankments. Signal green times were however balanced to cope with the increased demand on Back Station Rd westbound.

4.4 Mill Rd / Main St

4.4.1 No physical mitigation was considered at this junction. However, signal timings were optimised to balance queues on each approach and better use the full capacity of the existing layout.

5. RESULTS SUMMARY

5.1.1 For consistency, we present the same key performance indicators as used in previous studies. Table 4 compares the AM period results of all development scenarios against those of the Base model. Table 5 shows the results for the PM period.

5.1.2 Detailed journey time results for key routes through Linlithgow are presented in Section 5.8.

5.1.3 We have also extracted link vehicle density plots from the models which effectively illustrate the average queue lengths on the network.

5.2 Key performance indicators

5.2.1 The various demand scenarios were assigned to the model network to assess their impacts on various key performance indicators. Full network statistics are presented in Table 4 and Table 5. Most indicators are self-explanatory, however descriptions of those that are not can be found below.

5.2.2 **Number of vehicles in the network** – vehicles remaining in the network at the end of the evaluation interval i.e. those vehicles that have started but not completed their trip.

5.2.3 **Number of vehicles that have left the network** – vehicles that have completed their trips at the end of the evaluation interval.

5.2.4 **Demand Latent** – the number of vehicles that haven ‘t been able to access the network from their zone i.e. when a link is queued back to a zone, vehicles may not be released.

5.3 Do Nothing (full development demand no mitigation)

5.3.1 In the AM period, the results show that the impact of the full development traffic on the Base network is an increase in average delay of 14s.

5.3.2 In the PM period, average delay is around a minute higher than the AM period for the equivalent scenario. The Do Nothing scenario results in an increase in average delay of 15s over the Base result.

5.3.3 Figure 6 and Figure 7 show link vehicle density plots for the AM and PM Do Nothing scenarios – key queues are highlighted. These figures show a large increase in queue lengths on St Ninian’s Road in both the AM and PM periods. An increase in traffic demand on Back Station Road results in increased queues here in both time periods. Similarly, queues increase in length on Blackness Rd particularly in the PM peak.

5.3.4 At the Main St / Mill Road junction in the PM peak, an increase in demand results in longer eastbound queues.

5.3.5 There is general congestion on High St in both periods.

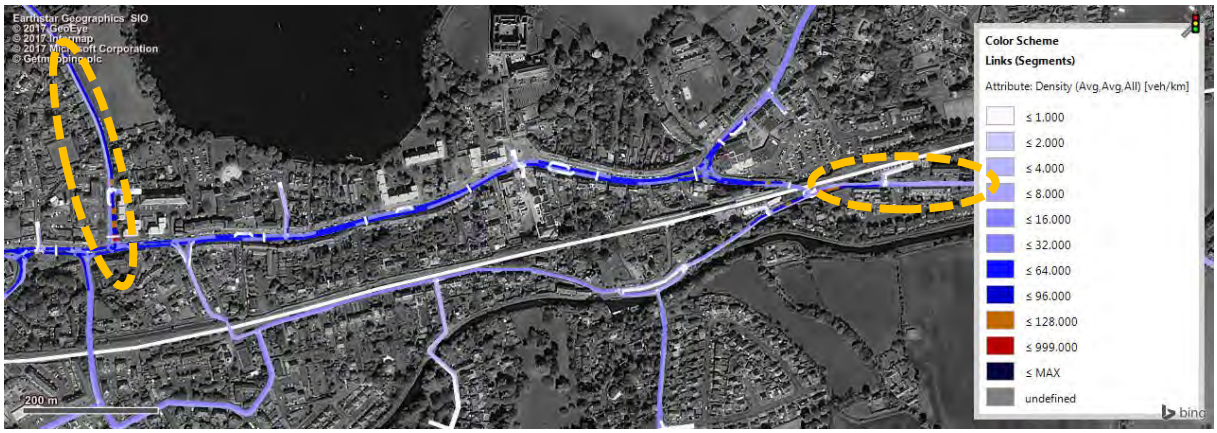

Figure 6. AM Do Nothing link vehicle density

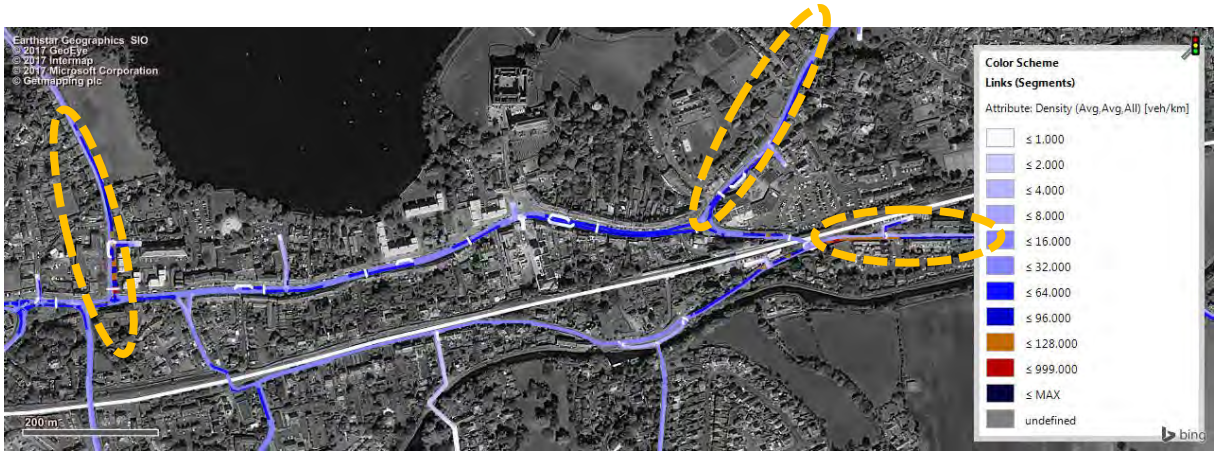

Figure 7. PM Do Nothing link vehicle density

5.4 Scenario 9a (full development demand WFS)

5.4.1 The introduction of the WFS allows the full development traffic to be accommodated onto the network (9a scenario) with a lower average delay than the Base model. This is because the impact of the WFS is to significantly reduce traffic travelling eastbound through Linlithgow. Some queuing remains on St Ninian's Road however and the Back Station Road and Blackness Rd are also subject to congestion particularly in the PM peak.

5.4.2 Figure 8 and Figure 9 show link vehicle density plots for this scenario with key areas of congestion highlighted.

Figure 8. AM Scenario 9a link vehicle density

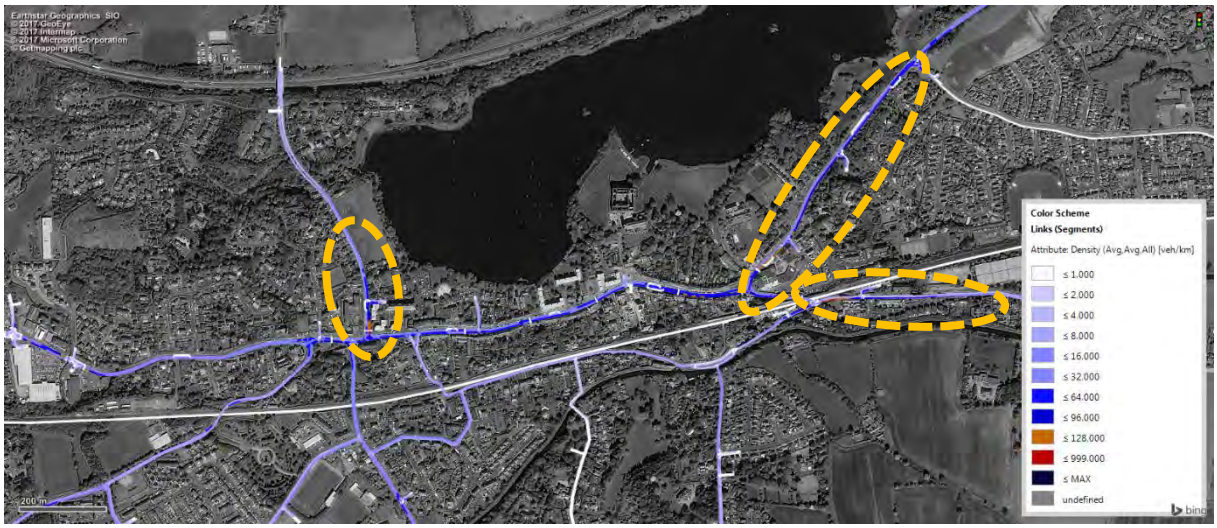

Figure 9. PM Scenario 9a link vehicle density

5.4.3 Appendix 1 details the existing and proposed trips that may use the new slips.

5.5 Scenario 8a (No Bo'Ness WFS)

5.5.1 Removing the demand associated with the Bo'Ness development slightly improves the network average travel time and average vehicle speeds in the AM peak. Consequently the AM scenario operates with less delay than the Base model.

5.5.2 In the PM peak this scenario has a greater impact, reducing the network average travel times by 17s over Scenario 9a so that the average delay is 132s (the lowest result for any PM scenario) although still much higher than the equivalent AM scenario.

5.6 Discussion of unmitigated network results

5.6.1 Analysis of the unmitigated network model results shows that there are several key pinch points on the network that add to delay. The most evident are at St Ninian's Rd, where right turning traffic is unable to access the High St and so forms long queues; and at the High St / Blackness Rd / High Port / Back Station Rd area, where traffic blocks back through the roundabout and causes congestion.

5.6.2 It is however, evident that the impact of the development traffic is significantly reduced when the WFS scheme is introduced. It is also the case that removing traffic associated with development at Bo'Ness also leads to a general improvement in network conditions (and a reduction in the number of "vehicles that have left the network" due to the lower demand associated with this scenario).

5.6.3 Bearing this in mind, and taking cognisance of the network constraints (particularly canal / railway bridges or tunnels) we have therefore tested mitigation measures at St Ninian's Rd / High St (to reduce the very large queues evident here in all scenarios) and at Blackness Rd / High St roundabout (to reduce the incidences of blocking back from the Back Station Rd junction, to improve journey time reliability and to improve pedestrian ambience at this key location).

5.7 Discussion of mitigated network results

5.7.1 The proposed network mitigation at St Ninian's Rd resolves the queue at this location caused by development traffic by giving priority to right turning traffic from St Ninian's Rd over westbound traffic on High St. As a consequence of this, more traffic is pushed onto High St's westbound approach to the Mains Rd (A706) roundabout and this section of road quickly reaches capacity. The signalised pedestrian crossing at this location reduces the capacity further leading to blocking back along High St and Preston Rd.

5.7.2 The proposed network mitigation at Blackness Rd / High St / High Port does serve to better manage traffic in terms of keeping this junction clear and provides improved pedestrian facilities. However, the capacity of the junction is not improved over the existing roundabout and so queues, particularly on Blackness Rd, are not generally improved.

5.7.3 Figure 10 shows the AM link vehicle density plot for the Scenario 9b mitigated (Full Development demand). The queue triggered on Preston Rd is highlighted. Figure 11 shows the PM link vehicle density plot for the equivalent PM scenario. The queue on Preston Rd is less severe in this period but queues at Blackness Rd are worse than in the AM.

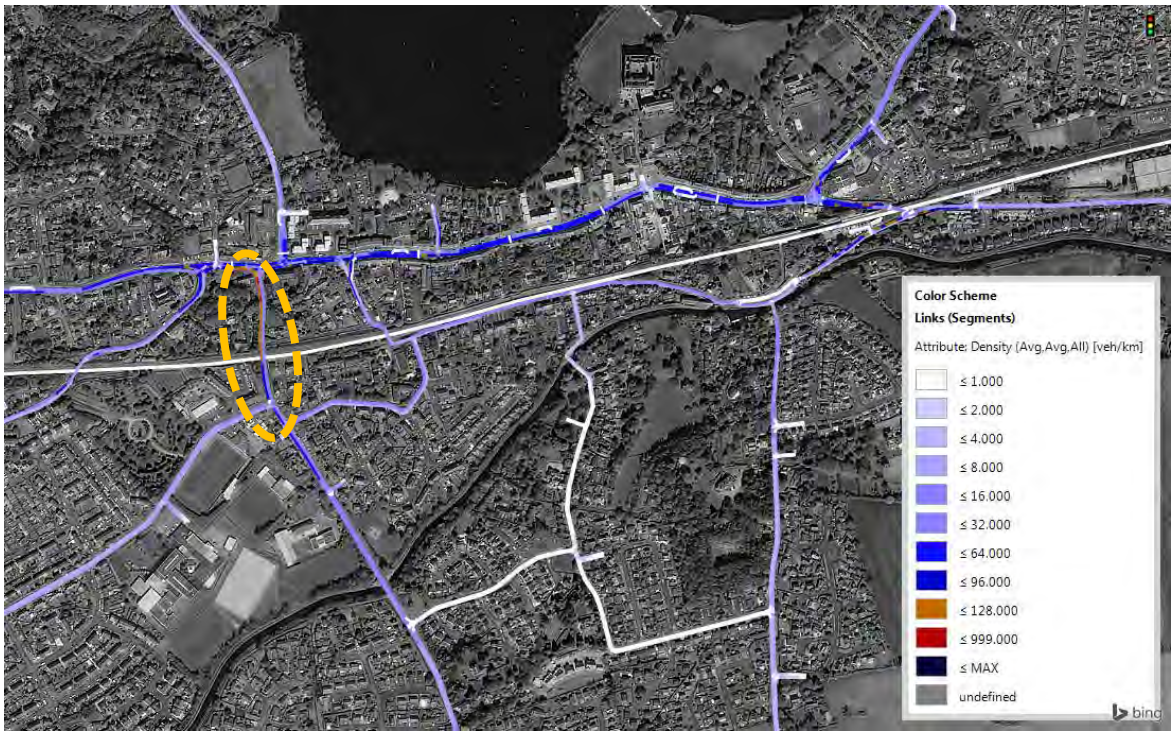

Figure 10. AM Scenario 9b mitigated

Figure 11. PM Scenario 9b mitigated

5.7.4 Network results show that the mitigated scenarios generally increase average delay over the unmitigated scenarios. This is a consequence of vehicles stopping at a new signalised junction and westbound vehicles on High St losing priority to development traffic on St Ninian's Rd.

5.7.5 The impact of the mitigation on delay in the WFS scenarios is however low. Despite increases in delay over the *unmitigated* Scenario 8a, the *mitigated* Scenario 8a (no

Bo'Ness with WFS) has lower average delay than the Base model in both AM and PM periods.

5.7.6 Scenario 9a mitigated (full development demand and WFS) also has lower delay than the Base model in the PM period.

MODELS	BASE AM	DO NOTHING AM	9B MITIGATED AM	8B MITIGATED AM	9A AM	8A AM	9A MITIGATED AM	8A MITIGATED AM
Description	*Base AM*	*Full DevDemand DoNothing*	*Full DevDemand Mitigated*	*NoBoness Mitigated*	*Full Dev Demand WFS*	*NoBoness WFS*	*Full DevDemand WFS Mitigated*	*NoBoness WFS Mitigated*
Average delay time per vehicle [s]	107	121	172	138	89	82	117	102
Average number of stops per vehicles	3	4	5	4	2	2	3	3
Average speed [mph]	16	14	13	15	17	17	16	17
Average stopped delay per vehicle [s]	51	58	92	70	41	38	60	52
Total Distance Travelled [km]	9,098	11,142	10,903	10,156	10,897	9,997	10,750	9,951
Total travel time [hrs]	347	451	509	424	409	366	429	375
Total delay time [hrs]	119	168	239	171	124	101	163	126
Number of Stops	12,381	17,795	22,997	16,253	12,308	10,118	15,853	12,359
Total stopped delay [hrs]	57	80	128	86	57	46	83	64
Number of vehicles in the network	286	426	509	364	359	319	361	303
Number of vehicles that have left the network	3,739	4,536	4,499	4,097	4,631	4,110	4,626	4,137
Demand Latent	0.8	0	4	1	0.4	0.6	0.4	0.6

Table 8. Key Performance Indicators AM period

SCENARIO	BASE PM	DO NOTHING PM	9B MITIGATED PM	8B MITIGATED PM	9A PM	8A PM	9A MITIGATED PM	8A MITIGATED PM
Description	*Base PM*	*FullDevDemand DoNothing*	*FullDevDemand Mitigated*	*NoBoness Mitigated*	*FullDevDemand WFS*	*NoBoness WFS*	*FullDevDemand WFS Mitigated*	*NoBoness WFS Mitigated*
Average delay time per vehicle [s]	168	183	206	178	149	132	158	149
Average number of stops per vehicles	5	5	5	4	4	4	4	4
Average speed [mph]	13	12	12	13	14	15	13	14
Average stopped delay per vehicle [s]	88	103	111	98	69	59	82	77
Total Distance Travelled [km]	10,341	12,889	12,659	12,064	12,239	11,570	12,072	11,381
Total travel time [hrs]	492	652	661	580	562	494	561	504
Total delay time [hrs]	218	290	327	258	238	191	251	215
Number of Stops	21,929	26,613	29,571	23,040	24,582	19,877	23,763	19,842
Total stopped delay [hrs]	114	164	175	142	111	85	130	111
Number of vehicles in the network	549	713	698	566	606	503	629	545
Number of vehicles that have left the network	4,118	5,006	5,006	4,642	5,140	4,712	5,092	4,652
Demand Latent	5	67	75	35	6	2	29	21

Table 9. Key Performance Indicators PM period

5.8 Journey Time Analysis

5.8.1 Figure 12 below provides an illustration of the journey time routes used in the analysis. These are the same routes as used in the Base model validation and results are presented for both directions on all routes. Routes are therefore designated NB (northbound), SB (southbound), EB (eastbound), WB (westbound), SW (southwest bound) or NE (northeast bound).

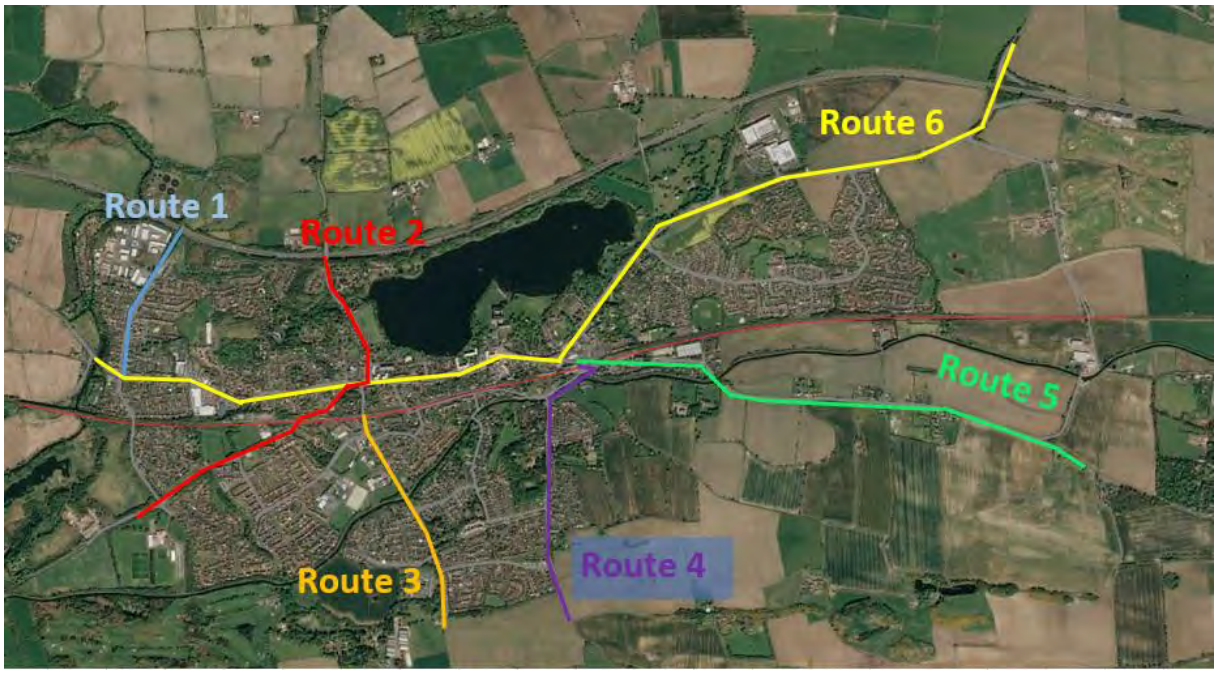

Figure 12. Journey Times Routes.

5.8.2 Table 10 (AM) and Table 11 (PM) below show the results for each journey time route for each scenario. The tables are presented as the change of each result from the equivalent Base model result. Results are also colour coded so that red = worse, yellow = no change, and green = better.

5.8.3 **AM Period**

5.8.4 The results for the **Do Nothing** scenario highlight that the largest issue is on St Ninian's Rd southbound where the journey time increases by 319s. This is due to the weight of development traffic using this road and the subsequent lack of capacity at the junction with High St, where right turning vehicles don't have sufficient gaps to make their turn. There are also significant increases on routes 4-NB, 5-WB, 6-SW and 6-NE of 40-70s. These are mostly caused by congestion at the Blackness Rd / High St / High Port roundabout.

5.8.5 Introducing network mitigation (**9b mitigated**) shows that the mini-roundabout at St Ninian's Road / High St substantially improves the travel time on route 2-SB (now just 6s worse than Base result). This is at the expense of travel times on Preston Rd northbound

(route 3-NB) where the weight of the now released development traffic causes 162s of additional delay. Routes 4-NB, 6-SW and 6-NE don't respond well to the introduction of traffic signals at Blackness Rd / High St, all showing additional delay, however route 5-WB does show a modest improvement.

5.8.6 Removing Bo'Ness traffic from the mitigated network (**8b mitigated**) results in substantial improvements to Route 3-NB and Route 6-SW and more modest improvements to Routes 5-WB and 6-NE.

5.8.7 The introduction of the WFS (**9a**) leads to improved results when compared to the Do Nothing scenario. Most journey times are very close to those of the Base model with the exception of Route 5-WB which increases by 75s due to delays approaching town on Back Station Rd.

5.8.8 The mitigated WFS scenarios (**9a mitigated and 8a mitigated**) show a similar pattern of results but with scenario 8a mitigated having several improvements as expected with the reduction of demand. The main change is around the Blackness Rd / High St junction where scenario 8a mitigated has lower journey times due to the signalised junction here now being able to operate within capacity.

5.8.9 **PM Period**

5.8.10 In the PM period, the **Do Nothing** scenario shows large increases in journey times on routes 1-SB, 2-SB and 5-WB. These are caused by the scale of development traffic approaching the High St and Main St on these routes. The improvement in travel time for Route 6-SW is due to reduced delays on the approach to Blackness Rd / High St roundabout and on the section approaching Linlithgow Bridge. In this scenario, the assignment attempts to avoid excessive congestion on the High St by routing eastbound traffic off High St and instead to the south via Royal Terrace. This results in less delay for traffic on Route 6-SW but causes severe delays elsewhere.

5.8.11 As in the AM period, introducing mitigation (**9b mitigated**) shows that the mini-roundabout at St Ninian's Road / High St substantially improves the travel time on route 2-SB (now running faster than the Base model). Preston Rd northbound (route 3-NB) shows a modest 27s of additional delay as a result of the extra development traffic now able to access the High St. Routes 5-WB, 6-SW and 6-NE don't respond well to the introduction of traffic signals at Blackness Rd / High St, all showing substantial additional delay. The travel time increase on route 1-SB is successfully mitigated by the optimisation of traffic signals at the Mill Rd / Main St junction.

5.8.12 Removing Bo'Ness traffic from the mitigated network (**8b mitigated**) results in substantial improvements to Routes 5-WB and 6-SW. The signalised junction at Blackness Rd / High St now operates better leading to lower delay (rather than over capacity as in the Do Nothing).

5.8.13 As in the AM period, the introduction of the WFS (**9a**) leads to improved results compared to the Do Nothing scenario. Some routes are, however, still subject to substantial increases in delay (2-SB, 5-WB, 6-SW at +60s or more over the Base result).

5.8.14 Removing the Bo'Ness development from the WFS scenario (**8a**) has a very positive impact on delays in the PM period. The majority of routes in this scenario are faster than the Base with only route 5-WB slower.

5.8.15 As in the AM period, the mitigated WFS scenarios (**9a mitigated and 8a mitigated**) show a similar pattern of results but Scenario 8a mitigated shows substantial improvements on route 6 in both directions. Scenario 8a does have a modest increase in travel time on route 3-NB on Preston Rd.

SYSTRA

Route	Route Description	Distance (m)	Do Nothing (secs) AM		9b mitigated AM Full Dev Demand Mitigated (secs)		8b mitigated AM Dev Demand No Boness Mitigated (secs)		9a AM Full Dev Demand WFS(secs)		8a AM Dev Demand No Boness WFS (secs)		9a mitigated AM ALL DEMAND WFS Mitigated (secs)		8a mitigated AM No Boness WFS Mitigated (secs)		20.Full Dev Demand WFS Preston RT (secs)	
1-NB	Mill Road/Main	718.2	0%	0.0	-1%	-0.4	0%	-0.2	1%	0.6	1%	0.5	1%	0.4	0%	0.1	1%	0.3
1-SB	Mill Road (M9	716.52	9%	8.4	7%	6.2	8%	7.6	17%	15.7	17%	14.9	5%	4.1	4%	4.0	6%	5.3
2-NB	A706 / Kettlestoun	1897.84	7%	15.8	15%	33.7	12%	27.0	0%	-0.6	-3%	-6.0	8%	18.0	4%	9.2	2%	3.6
2-SB	St Ninian's Rd (M9	1897.79	128%	319.2	3%	6.3	-5%	-13.4	5%	13.5	-5%	-13.2	-7%	-16.6	-9%	-23.0	26%	63.6
3-NB	Preston Road ->	880.2	-1%	-1.0	109%	162.0	8%	11.4	-4%	-5.7	-4%	-6.2	33%	49.6	0%	0.7	-4%	-6.3
3-SB	Railway Bridge ->	880.2	0%	0.6	1%	1.2	0%	0.4	1%	1.6	1%	0.8	1%	0.9	0%	0.2	1%	1.0
4-NB	Manse Rd -> High	1186.54	37%	67.7	62%	113.3	60%	108.4	3%	4.6	2%	2.9	55%	100.0	33%	60.6	5%	9.9
4-SB	High Port -> Manse	1195.32	4%	6.9	11%	17.7	5%	7.7	2%	2.6	3%	5.4	10%	14.8	5%	7.5	2%	3.7
5-EB	High Port -> B9080	2313.16	-1%	-2.8	-1%	-1.5	-1%	-2.6	-1%	-2.5	-2%	-4.2	-2%	-3.7	-2%	-4.0	-2%	-3.3
5-WB	B9080 -> High Port	2311.93	17%	38.5	10%	23.0	15%	33.3	33%	75.0	26%	58.0	29%	65.8	11%	25.3	34%	75.1
6-SW	A803 / Springfield	4939.27	8%	51.0	30%	186.3	5%	29.0	0%	-0.6	-7%	-46.3	7%	46.0	-2%	-12.7	2%	12.1
6-NE	Linlithgow Bridge ->	4913.89	8%	46.9	15%	91.7	14%	88.7	3%	21.1	1%	3.8	6%	38.3	2%	15.0	5%	29.5
Total		23850.86	19%	**551.0**	22%	**639.5**	10%	**297.1**	4%	**125.2**	0%	**10.5**	11%	**317.6**	3%	**82.8**	7%	**194.6**
Average Speed (mph)			-16%		-18%		-9%		-4%		0%		-10%		-3%		-6%	

Table 10. AM Journey time summary with respect to the Base model

Route	Route Description	Distance (m)	Do Nothing (secs) PM		9b mitigated PM Full Dev Demand Mitigated(secs)		8b mitigated PM Dev Demand No Boness Mitigated (secs)		9a PM Full Dev Demand WFS (secs)		8a PM Dev Demand No Boness WFS (secs)		9a mitigated PM ALL DEMAND WFS Mitigated (secs)		8a mitigated PM No Boness WFS Mitigated (secs)	
1-NB	Mill Road/Main	718	1%	1.4	0%	0.3	0%	0.1	0%	-0.1	0%	0.2	0%	-0.1	0%	0.0
1-SB	Mill Road (M9	717	257%	329.0	31%	40.0	19%	24.5	8%	10.8	5%	6.5	-3%	-3.6	-6%	-7.4
2-NB	A706 / Kettlestoun	1,898	5%	11.2	17%	38.6	11%	24.6	3%	7.8	2%	4.5	6%	13.9	4%	8.6
2-SB	St Ninian's Rd (M9	1,898	57%	200.4	-26%	-91.9	-28%	-99.5	29%	100.3	-18%	-63.9	-27%	-93.7	-29%	-102.3
3-NB	Preston Road ->	880	1%	1.3	17%	27.1	3%	4.3	4%	6.4	2%	3.0	40%	61.6	67%	103.8
3-SB	Railway Bridge ->	880	6%	8.8	0%	0.7	1%	0.9	4%	5.9	4%	5.9	0%	0.1	0%	0.7
4-NB	Manse Rd -> High	1,187	11%	24.0	10%	22.3	-13%	-27.8	4%	9.0	-11%	-24.4	34%	74.6	30%	67.0
4-SB	High Port -> Manse	1,195	4%	6.3	13%	22.0	14%	23.8	2%	2.5	0%	0.4	13%	21.5	10%	16.9
5-EB	High Port -> B9080	2,313	-1%	-2.5	-5%	-10.2	-6%	-12.0	-1%	-1.6	-1%	-1.4	-3%	-6.2	-3%	-7.0
5-WB	B9080 -> High Port	2,312	36%	97.5	20%	54.1	2%	6.4	20%	53.9	14%	38.4	3%	7.0	1%	2.9
6-SW	A803 / Springfield	5,016	-16%	-135.6	19%	161.8	3%	29.9	7%	60.8	-4%	-37.2	7%	61.0	-5%	-47.1
6-NE	Linlithgow Bridge -	4,915	0%	-0.1	11%	74.2	7%	43.7	2%	14.3	-2%	-14.6	3%	20.5	-2%	-16.0
	Total	**23,929**	15%	**541.5**	10%	**339.1**	1%	**18.9**	8%	**269.9**	-2%	**-82.7**	4%	**156.6**	1%	**20.1**
	Average Speed (mph)		-13%		-9%		-1%		-7%		2%		-4%		-1%	

Table 11. PM Journey time summary with respect to the Base model

6. CONCLUSION

6.1.1 This note has provided details of the methodology used to assess various development and mitigation scenarios for Linlithgow using the Linlithgow Vissim Model (2018 base year).

6.1.2 Forecast matrices were developed from LDP housing and employment information for Linlithgow as well as from information for sites in Falkirk Council area (Bo'Ness). The effect of the proposed M9 J3 West Facing Slips was also modelled by amending trip origins / destinations for a catchment area towards the east of Linlithgow.

6.1.3 Several network mitigation measures were coded in response to issues evident in the Do Nothing scenarios. These included a mini-roundabout at St Ninian's Rd / High St, a signalised junction at Blackness Rd / High St / High Port and signal optimisation at various other junctions.

6.1.4 The results of the modelling showed that the impact of development traffic on the Base network will be substantial with higher average delays on the network as a whole. Some individual routes through Linlithgow are severely affected, in particular St Ninian's Rd southbound and all routes using the Blackness Rd / High St / High Port junction.

6.1.5 The proposed network mitigation on its own doesn't allow the level of delay in the network to return to the same level as in the Base. The network mitigation does however allow the long queues on St Ninian's Rd southbound to dramatically improve. However, this tends to have a knock-on impact to delays on High St and Preston Rd. The roundabout at the junction of High St / Mains Rd becomes a pinch-point (especially as capacity is further constrained by the signalised pedestrian crossing to the east). Further improving the capacity of this area may prove difficult given the competing traffic flows in peak hour traffic and the offset nature of the junctions.

6.1.6 The proposed WFS has the effect of removing a substantial amount of traffic from High St, therefore the scenarios including WFS show improvements in network performance over the Do Nothing scenario. These improvements are further enhanced when Bo'Ness development traffic is also removed from the network.

Appendix 1

New Development zones using the west facing slips M9J3 (AM peak)

Vissim Zones	Description	To WFS		From WFS	
		AM Light Vehicles	AM Heavy Vehicles	AM Light Vehicles	AM Heavy Vehicles
47	Boghall East	3	0	1	0
50	Claredon House 30 Manse Road	0	0	0	0
51	Wilcoxholm Farm / Pilgrims Hill	12	0	3	0
55	Land at Burghmuir, North of Blackness Road	2	0	3	0
	Total	**17**	**0**	**7**	**0**

New Development zones using the west facing slips M9J3 (PM peak)

Vissim Zones	Description	To WFS		From WFS	
		PM Light Vehicles	PM Heavy Vehicles	PM Light Vehicles	PM Heavy Vehicles
47	Boghall East	2	0	4	0
50	Claredon House 30 Manse Road	0	0	0	0
51	Wilcoxholm Farm / Pilgrims Hill	8	0	14	0
55	Land at Burghmuir, North of Blackness Road	10	0	2	0
	Total	**20**	**0**	**20**	**0**

Development Vissim zones above will be directly impacted by the introduction of the WFS. The trips that these zones were previously generating towards A803 west (Vissim zone 1) are now using the WFS zone instead (Vissim zones 56 out of the Network, and 57 into the Network). The total number of development trips relocated are 24 in the AM peak and 40 in the PM peak.

Existing Zones using the new west facing slips M9J3 (AM)

Vissim Zones	Description	To WFS		From WFS	
		AM Light Vehicles	AM Heavy Vehicles	AM Light Vehicles	AM Heavy Vehicles
3	A803 to/from Bo'ness	4	0	13	0
4	East Facing on-Slip road	0	0	8	0
5	East Facing off-Slip road	2	1	0	0
6	Kingsfield Golf & Leisure	3	0	0	0
7	Springfield Road	8	0	3	0
8	Oracle Campus	3	0	10	0
9	Grange View	3	0	3	0
10	Oracle Campus	6	0	10	0
11	Springfield Road	11	0	3	0
12	Barons Hill Avenue	10	0	3	0
13	Regent Centre	10	0	11	0
14	B9080	17	4	10	3
15	Clarendon Road	6	0	2	0
22	Linlithgow Station Parking East	4	0	2	0
37	Edinburgh Road	6	0	0	0
40	Linlithgow Station Parking West	2	0	2	0
	Total	**95**	**5**	**80**	**3**

Existing Zones using the new west facing slips M9J3 (PM)

Vissim Zones	Description	To WFS		From WFS	
		PM Light Vehicles	PM Heavy Vehicles	PM Light Vehicles	PM Heavy Vehicles
3	A803 to/from Bo'ness	8	0	23	0
4	East Facing on-Slip road	0	0	7	0
5	East Facing off-Slip road	8	1	0	0
6	Kingsfield Golf & Leisure	4	0	0	0
7	Springfield Road	6	0	5	0
8	Oracle Campus	2	0	15	0
9	Grange View	2	0	5	0
10	Oracle Campus	4	0	15	0
11	Springfield Road	8	0	5	0
12	Barons Hill Avenue	6	0	4	0
13	Regent Centre	7	0	11	0
14	B9080	10	3	19	0
15	Clarendon Road	3	0	1	0
22	Linlithgow Station Parking East	4	0	5	0
37	Edinburgh Road	16	0	0	0
40	Linlithgow Station Parking West	4	0	5	0
	Total	**92**	**4**	**120**	**0**

The existing trips above that were previously using the main street towards A803 west (Vissim zone 1) are now using the WFS instead (Vissim zones 56 out of the Network, and 57 into the Network), this includes trips to / from Bo'ness.

The methodology employed did not result in the generation of trips between the new Bo'ness housing allocation sites and the WFS. This is because no new trips for the housing sites were generated to / from Zone 1. Therefore no new trips were reallocated to the WFS.

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