

Annex A - Any correspondence (post 2018) with the Scottish Ministers and Transport Scotland regarding traffic modelling and the overall effect on traffic volume:

Extract from briefing sent to Minister dated 12 January 2018

Suitable provision for all users, including cyclists, is an important part of the proposed improvements to Sheriffhall Roundabout. The preferred grade separated option will improve access for pedestrians and cyclists compared to the existing arrangement. Grade separation itself will allow the A720 Edinburgh City Bypass traffic to pass over the junction while significantly reducing congestion and improving accessibility for all modes of transport including pedestrians and cyclists.

As part of the scheme, grade separation at Sheriffhall will improve access for pedestrians and cyclists compared to the existing arrangement. By allowing Edinburgh City Bypass traffic to pass over it will significantly reduce congestion and improve accessibility for all modes of transport including pedestrians and cyclists. Provision for all non-motorised users, including cyclists, is being developed in further detail as we progress the development and assessment of the preferred option, in consultation with local interest groups, including Sustrans and Spokes, as we look to publish draft Orders in 2019 for formal comment.

Extract from Background Note from Parliamentary Question S5W-16386 dated 30 May 2018

The preferred option provides a two bridge roundabout grade separation at Sheriffhall with the A720 City Bypass carried across an enlarged roundabout on two new bridges. The A720 City Bypass will be raised on embankments on approach to these new bridges, allowing the traffic on the bypass to flow freely.

Extract from Background Note from Parliamentary Question S5W-16385 dated 06 June 2018

While Option C was favoured by cycling groups such as Spokes and offered benefits, in terms of offering easier implementation of pedestrian and cyclist facilities, it showed poor operational performance when compared to the other Options, with critical congestion issues found to occur soon after year of opening. It also had a greater environmental impact and had a significantly poorer economic return compared to the preferred option.

Suitable provision for all users, including cyclists, is an important part of the proposed improvements to Sheriffhall Roundabout. The preferred grade separated option will improve access for pedestrians and cyclists compared to the existing arrangement. Grade separation itself will allow Edinburgh City Bypass traffic to pass through while significantly reducing congestion and improving accessibility for all modes of transport including pedestrians and cyclists.

Extract from Background Note – Parliamentary Question - S5O-02666 dated 06 December 2018

The A720 plays a fundamental role in providing strategic connectivity and supporting economic development within the region and Sheriffhall roundabout is a well-known bottleneck for travellers using and crossing the Edinburgh City Bypass.

Sheriffhall Roundabout is currently the only junction on the A720 Edinburgh City Bypass that isn't grade separated, which means the main City Bypass is at the same level as the local approach roads. This at-grade, six-way junction often experiences significant queuing, especially during peak hours.

The preferred upgrade option is a grade separated junction which separates local traffic from the strategic traffic on the A720 (city bypass) and when complete will allow the traffic on the bypass to flow freely, improving road safety and journey times for all road users, bringing improved economic benefits and inclusion across Edinburgh and South-East Scotland.

Extract from note to Minister dated 20th March 2019

The preferred option is a grade separated junction arrangement, it separates local traffic from the strategic traffic on the A720 and will allow the traffic on the city bypass to flow freely, improving road safety and journey times for all road users.

Transport Scotland has undertaken extensive consultation with active travel stakeholders regarding provision for non-motorised users, including cyclists, at Sheriffhall and suitable provision for all users, including cyclists, is a key part of the proposed improvements to Sheriffhall Roundabout. By allowing Edinburgh City Bypass traffic to pass over it will significantly reduce congestion and improve accessibility for all modes of transport including pedestrians and cyclists. Provision for all non-motorised users, including cyclists, is being developed in further detail as we progress the development and assessment of the preferred option, in consultation with local interest groups, including Sustrans and Spokes, as we look to publish draft Orders in 2019 for formal comment.

Extract from Background Note – Parliamentary Question - S5O-03558 dated 19 September 2019

The preferred option is a grade separated junction arrangement, it separates local traffic from the strategic traffic on the A720 and will allow the traffic on the city bypass to flow freely, improving road safety and journey times for all road users.

By allowing Edinburgh City Bypass traffic to pass over it will significantly reduce congestion and improve accessibility for all modes of transport including pedestrians and cyclists.

Extract from briefing to Cabinet Secretary dated 27 November 2019

The proposed scheme comprises a grade separated junction arrangement, it separates local traffic from the strategic traffic on the A720 and will allow the traffic on the city bypass to flow freely, improving road safety and journey times for all road users. The scheme comprises a grade separated roundabout requiring vertical and horizontal realignment of the A720 Edinburgh City Bypass over an approximate length of 1.6km. The scheme also includes:

- an enlarged, 8-arm Sheriffhall Roundabout, retained at its existing location and reduced to three lanes;
- two principal structures, to carry the A720 across the enlarged roundabout;
- extension of the Borders Railway structure to allow the construction of new eastern slip roads joining the enlarged roundabout; and
- the provision of substantial active travel facilities including five dedicated NMU subways under the enlarged roundabout providing an off carriageway route for pedestrians, cyclists and equestrians. The proposed NMU facilities have been acknowledged by Spokes as exemplar.

Extract from Background Note Parliamentary Question S5W-26659 dated 19 December 2019

The preferred grade separated option will separate local traffic from the strategic traffic on the A720 and will allow the traffic on the city bypass to flow freely at this location, improving road safety and journey times for all road users

The preferred option separates local traffic from the strategic traffic on the A720 and will allow the traffic on the city bypass to flow freely at this location, improving road safety and journey times for all road users.

Extract from Briefing to Cabinet Secretary dated 29 April 2020

The preferred grade separated option will separate local traffic from the strategic traffic on the A720 and will allow the traffic on the city bypass to flow freely at this location, improving road safety and journey times for all road users.

Delays will continue to increase significantly at this already congested junction, which affects over 67,000 journeys each day, if no action is taken.

The current proposals for Sheriffhall will reduce the daily congestion experienced at the roundabout, improve safety and remove the barrier to active travel to support modal shift.

The scheme will encourage uptake of bus rather than car travel through improved links to adjacent Park and Ride facilities and improve bus journey times following re-design of the junction.

Our extensive active travel proposals for the scheme have been informed through significant consultation and total 2 miles of new pedestrian and cycle paths.

This includes five dedicated subways under the new roundabout linking with existing paths nearby, providing cyclists and pedestrians with their own, safer, dedicated routes.

Extract from Background Note – Parliamentary Question - S5W-30215 dated 07 July 2020

The preferred grade separated option will separate local traffic from the strategic traffic on the A720 and will allow the traffic on the city bypass to flow freely at this location, improving road safety and journey times for all road users.

The Scheme separates local traffic from the strategic traffic on the A720 and will allow the traffic on the city bypass to flow freely at this location, improving road safety and journey times for all road users.

By allowing Edinburgh City Bypass traffic to pass over it will significantly reduce congestion and improve accessibility for all modes of transport including pedestrians and cyclists.

Extract from Background Note – Parliamentary Question - S5O-04667 dated 07 October 2020

The preferred grade separated option will separate local traffic from the strategic traffic on the A720 and will allow the traffic on the city bypass to flow freely at this location, improving road safety and journey times for all road users.

The Scheme separates local traffic from the strategic traffic on the A720 and will allow the traffic on the city bypass to flow freely at this location, improving road safety and journey times for all road users.

By allowing Edinburgh City Bypass traffic to pass over it will significantly reduce congestion and improve accessibility for all modes of transport including pedestrians and cyclists.

Extract from Background Note – Parliamentary Question - S5W-32422 dated 29 October 2020

The preferred grade separated option will separate local traffic from the strategic traffic on the A720 and will allow the traffic on the city bypass to flow freely at this location, improving road safety and journey times for all road users.

The Scheme separates local traffic from the strategic traffic on the A720 and will allow the traffic on the city bypass to flow freely at this location, improving road safety and journey times for all road users.

By allowing Edinburgh City Bypass traffic to pass over it will significantly reduce congestion and improve accessibility for all modes of transport including pedestrians and cyclists.

Extract from Minute to Cabinet Secretary dated 08 December 2020

The scheme already offers significant local bus journey time savings across the junction with a decrease in average journey times of up to 30% (2.7 minutes) on the A7 and up to 72% (7.0 minutes) on the A6106. The review of improvements to public transport provisions considered a total of six bus priority options ranging from dedicated lanes to full traffic signalisation. Four options were discounted as a result of demonstrating negligible benefits as well as exhibiting detrimental impacts on general traffic and having deliverability issues. The remaining options considered did provide benefits to bus journey times and reliability, however the benefits were considered to be marginal when compared to the benefits already offered by the proposed scheme and would also introduce operational challenges and conflicts for general traffic passing through the junction. It was therefore concluded that all options considered to improve public transport provision offered marginal benefits to bus journey times compared to what will be realised by the scheme as currently promoted.

Extract from Background Note – Parliamentary Question - S5O-04843 dated 10 December 2020

The Scheme separates local traffic from the strategic traffic on the A720 and will allow the traffic on the city bypass to flow freely at this location, improving road safety and journey times for all road users.

By allowing Edinburgh City Bypass traffic to pass over it will significantly reduce congestion and improve accessibility for all modes of transport including pedestrians and cyclists.

Extract from Minute to Cabinet Secretary dated 24 December 2020

CEC have raised some technical issues around traffic modelling that we will try to close out with them and we will further investigate if there are small amendments to the scheme that might assist CEC in stepping back from their current position. Those amendments would need to work within the scope of the orders and not create additional operational issues on the roundabout. Other CRD partners would have to agree with any further amends as they may have wider network issues for other local authorities.

Extract from Background Note – Parliamentary Question - S5W-34943 dated 17 February 2021

When completed, the new flyover arrangement will separate local traffic on the A7 and A6106, including public transport, from the strategic traffic on the bypass and will allow the traffic on the bypass to flow freely at this location, improving road safety and journey times for all users. In addition the proposed new active travel facilities (totalling two miles) will provide cyclists and pedestrians with their own safer dedicated alternative routes, removing the difficulty of travelling across the roundabout and transforming the way they cross the A720 City Bypass.

The scheme will also encourage uptake of bus rather than car travel through improved links to adjacent Park and Ride facilities and reduce bus journey times following re-design of the junction with approximately 75 per cent of strategic traffic removed from the roundabout.

The Scheme separates local traffic from the strategic traffic on the A720 and will allow the traffic on the city bypass to flow freely at this location, improving road safety and journey times for all road users.

By allowing Edinburgh City Bypass traffic to pass over it will significantly reduce congestion and improve accessibility for all modes of transport including pedestrians and cyclists.

Extract from Background Note – Parliamentary Question - S6W-00569 dated 18 June 2021

When completed, the new flyover arrangement will separate local traffic on the A7 and A6106, including public transport, from the strategic traffic on the bypass and will allow the traffic on the bypass to flow freely at this location, improving road safety and journey times for all users. In addition the proposed new active travel facilities (totalling two miles) will provide cyclists and pedestrians with their own safer dedicated alternative routes, removing the difficulty of travelling across the roundabout and transforming the way they cross the A720 City Bypass.

The scheme will also encourage uptake of bus rather than car travel through improved links to adjacent Park and Ride facilities and reduce bus journey times following re-design of the junction with approximately 75 per cent of strategic traffic removed from the roundabout.

The Scheme separates local traffic from the strategic traffic on the A720 and will allow the traffic on the city bypass to flow freely at this location, improving road safety and journey times for all road users.

By allowing Edinburgh City Bypass traffic to pass over it will significantly reduce congestion and improve accessibility for all modes of transport including pedestrians and cyclists.

Extract from Background Note – Parliamentary Question - S6O-00282 dated 27 October 2021

The review also showed that the scheme already offers significant local bus journey time savings across the junction of up to seven minutes. Further bus interventions were considered such as dedicated lanes but these would create operational impacts on the roundabout itself.

When completed, the new flyover arrangement will separate local traffic on the A7 and A6106, including public transport, from the strategic traffic on the bypass and will improve traffic flow at this location, improving road safety and journey times for all users. In addition the proposed new active travel facilities (totalling two miles) will provide cyclists and pedestrians with their own safer dedicated alternative routes,

removing the difficulty of travelling across the roundabout and transforming the way they cross the A720 City Bypass.

Extract from Background Note – Parliamentary Question - S6O-00554 dated 16 December 2021

The review also showed that the scheme already offers significant local bus journey time savings across the junction of up to seven minutes. Further bus interventions were considered such as dedicated lanes but these would create operational impacts on the roundabout itself.

When completed, the new flyover arrangement will separate local traffic on the A7 and A6106, including public transport, from the strategic traffic on the bypass and will improve traffic flow at this location, improving road safety and journey times for all users. In addition the proposed new active travel facilities (totalling two miles) will provide cyclists and pedestrians with their own safer dedicated alternative routes, removing the difficulty of travelling across the roundabout and transforming the way they cross the A720 City Bypass.

Annex B - Any correspondence (post 2018) with Local Councils and Transport Scotland regarding traffic modelling and the overall effect on traffic volume:

Meeting with City of Edinburgh Council 8th May 2018 - Meeting Minutes Extract

Congestion – Sheriffhall

Described traffic conditions encountered at Sheriffhall during peak periods.

- Traffic coming from the south travelling north toward Edinburgh will make route decision early as to whether to avoid Sheriffhall, route decision made as far south as Newtowngrange in some instances. The presence of roadworks on routes north of the bypass also influences route selection. Drivers have route options as all routes in this area converge at Cameron Toll.
- The A7 South travelling northbound, traffic forms two unofficial narrow lanes, therefore no room for cyclists. It was noted that the southbound carriageway seems wide. It was also noted that if a lorry or HGV is queueing on northbound approach, most of traffic green time taken up by the larger vehicle maneuvering through traffic lights
- It was also noted that due to congestion, it has been observed that some drivers not complying with red traffic lights.

CEC expressed their fear that once Sheriffhall grade separation is implemented, and the existing traffic congestion bottleneck is removed, people may go back to driving. CEC are keen to promote and support continued modal shift, building on current PT usage.

CEC also noted that due to the significant planned development in the area, there could be unbalanced traffic demand on the Sheriffhall junction arms as time passes and different developments come on line.

Meeting with East Lothian Council 9th May 2018 - Meeting Minutes Extract

Congestion:

ELC felt that congestion is a big main issue. ELC find increasingly that the A1 has slow moving traffic due to congestion, especially in the AM Peak which is thought to be 8:15am onwards. Congestion on the Old Craighall roundabout slows traffic on the A1. It was also noted that the A1 is not just busy on weekday peak hours, but is also busy at the weekends with steady traffic flow.

There is a lot of development planned for the area. Therefore concerns that congestion will increase further making PT / buses an unattractive travel choice, and people will instead use cars.

Grade Separation:

ELC have concerns that junction improvements at Sheriffhall will remove the current bottleneck but then release traffic which will reach Old Craighall quicker adding to congestion. ELC also felt that improving the junction at Sheriffhall would attract more traffic through Sheriffhall junction.

Stage 3 Walking, Cycling and Horse-Riding Assessment (WCHAR) Workshop, Part 3 – dated 14th May 2018 – Extract

Workshop Minute, Item 9.8

[Redacted] noted that extensive traffic modelling work is ongoing and further PT consultations will be undertaken as traffic assessment progresses.

Transport Scotland Briefing Note to Edinburgh and South-East Scotland City Region Deal (EESCRD) Joint Committee – Extract dated 9th January 2020

"How the Scheme addresses existing demand"

Traffic modelling has also been undertaken to determine the impact of local proposed developments.

Taking into account the predicted traffic growth derived from regional models including additional trips generated by proposed developments, the results from the traffic models indicate that the existing Sheriffhall junction and the surrounding road network will experience significant operational stress during peak periods by the year 2024 with demand exceeding capacity.

City of Edinburgh Council Responses to Draft Orders and Environmental Statement – Extract dated 31st January 2020

However, CEC has concerns that the grade separation, if done in isolation and not as part of a wider planned strategic intervention for A720 in its entirety as is currently proposed, could encourage and increase car use which is contrary to both national and local level policy objectives and outcomes.

Current traffic issues on A720 at Sheriffhall, on both local and strategic road approaches, are well documented. The proposals to grade separate strategic and local road traffic will address many existing concerns, however, CEC have residual concerns that the delivery of increased traffic capacity will release induced demand and the ES highlights that 'Underlying traffic volumes on the road network around Edinburgh are expected to increase by approximately 40% over the next 20 years', therefore, to allay concerns, CEC would welcome an opportunity to review traffic modelling, assumptions, outputs and analysis to demonstrate that traffic signal control is not required on the local road approaches.

EESCRD Meeting dated 11 Feb 2020 - Meeting Note – Extract

1. [Redacted] and [Redacted] explained that the CEC, MLC and City Region Deal partners are all supportive of the scheme design, as it will improve traffic flow and permeability by separating local traffic flow from longer journeys that pass through the roundabout in an East-West direction.

It was agreed that TS will use the scheme model to examine the impact of road space re-allocation to bus on the local road approaches and circulatory lane of the roundabout within the current scheme boundary with potential priority through signalised control on the arms of the roundabout.

It was noted that even if the model shows acceptable outputs, there is significant suppressed demand, and an improved roundabout could attract a significant volume of increased general traffic, therefore bus priority measures should be considered in this context. TS noted that the Cross-boundary study which reported in 2017 provides evidence to support the points about wider impacts, increased growth, potential for induced demand and supported Sheriffhall as being a first step in improvements to the A720. The work provides information for local authorities to develop a developer contribution framework and also to support wider planning and strategy work in the region.

Follow-up to CEC ESESCRD Meeting 11 Feb 2020 – CEC to TS dated 13 Feb 2020 -

I was just going to mention a point of detail wrt the current suppression of traffic and that the grade separation of traffic will release extra capacity on the locals road network; making the use of car more attractive. Therefore, in order to drive model shift, we discussed relocating general traffic lanes to bus only lanes, however, the south approach on the A7 (from Dobbies inbound) is only single carriageway, therefore, a relocation of a general traffic lane to bus only will not be an option. In such circumstances (or where modelling outputs assessing the relocation of general traffic lanes to bus only lanes produces unacceptable results) I wonder whether you would consider the addition of extra lanes reserved for bus only on the approaches where appropriate; serving as a queue jump bus lane. i.e. a local widening on the A7 southern section from Dobbies, accommodating two inbound lanes, one of which would be reserved for bus only (this would also still maintain general traffic roads capacity where required). This consideration is in the context of your land-take parameters, as part of the stopping up of roads related to the works to significantly realign approach roads (as below image). Let me know if what I am asking doesn't make sense?

A720 Sheriffhall Roundabout Public Transport & Active Travel Technical Workshop dated 06 Aug 2020 –

Presentation can be found in Annex C.

Public Transport & Active Travel Technical Workshop dated 06 Aug 2020, Meeting Minutes Extract

3.1 [Redacted] (CEC) asked about the traffic on A7 approaches and whether after scheme opening there would still be issues at peak periods. [Redacted] noted that the Proposed Scheme will separate strategic and local traffic thereby reducing journey times on side roads. This would bring benefits to all traffic including public transport compared to the current situation at the junction. [Redacted] noted that the Proposed Scheme is good but would be wary of increased car usage, particularly making it more attractive for local movements, noting that public transport needs to be improved too.

3.3 [Redacted] (MCL) asked how the traffic signals had been modelled, how they would operate – would they include queue detectors? [Redacted] noted that the modelling assessment had included fixed timings for the traffic signals at the off slips

and modelling undertaken shows that the junction operated well on this basis. However, queue detectors could be used in the future as demand increases.

3.4 [Redacted] (SEStran) queried the number of daily vehicles in 2024 daily, and how the traffic would grow beyond 2024. [Redacted] explained that traffic growth from 2017 to 2024 is approximately 9% - which is background growth, and beyond that it is estimated that there would be a 5% increase in traffic through the junction for the Proposed Scheme.

4.7 [Redacted] (CEC) noted that only traffic modelling at year 2024 had been undertaken, and that there aren't simulations for 15 years after opening. [Redacted] advised that 15 years after opening has not been modelled but noted the significant improvement in traffic operation at 2024, suggesting we could therefore take some comfort there is scope for capacity for some years.

PT & AT Technical Workshop 06 Aug 2020, follow-up email - AECOM to CEC dated 12 August 2020

Traffic Modelling Reports:

The Sheriffhall Stage 3 report also include a summary of the traffic modelling undertaken, contained in Chapter 5. A Traffic and Economic Assessment Report has been prepared and can be available once the external audit, which is nearing completion, is signed off. I can let you know when available.

PT & AT Technical Workshop - CEC Feedback - email to AECOM dated 21 August 2020

The current design caters well for improvements to the strategic road network and the proposal to grade separate local and strategic traffic is welcome. The provisions made for active travel are generally excellent and will serve as a significant enhancement compared to the existing conditions for non-motorised users (NMU). However, CEC has concerns that if the proposals are implemented without dedicated and high-quality infrastructure that prioritises public transport above general traffic (as currently proposed), it could encourage and increase car use which is contrary to both national and local level policy objectives and outcomes. Given the key strategic location of this scheme, maximising the efficiency of public transport through the junction serves as a great opportunity to influence required modal change which is a key objective of our shared policy.

Summary of Queries and Actions:

1. CEC request an opportunity to review in some detail traffic modelling with the appropriate members of the project team. Please send contact details of relevant attendees and CEC will subsequently arrange.
2. Please confirm if a PC MOVA-Paramics link model been used at any stage?
3. Furthermore, has calculated growth beyond 2024 (up to 2039) been modelled? We would welcome sight of the modelling report to examine these results in more detail.
4. Can you please clarify anticipated traffic growth occurring as a result of suppressed demand? Please provide the modelling report to examine the results in more detail.
5. Has there been any reference to capacity modelling?

6. Please supply the exact development quantum's etc used in the model.
7. Has the performance of bus services through the junction for each option presented at the workshop been modelled in anyway? And if so, can you please provide details of.
8. Has modelling been undertaken accounting for a much increased number of new bus services through the junction, please supply details of.

PT & AT Technical Workshop - Response to CEC Feedback – Transport Scotland to CEC - dated 5 October 2020

Please refer to Annex C.

CEC Letter - Update response by CEC to A720 Sheriffhall Grade Separation Scheme dated 07 December 2020

Please refer to Annex C.

Response to CEC Feedback on Draft Orders and Technical Workshop – Transport Scotland email with letter attached dated 16 April 2021

In summary the review concludes that the scheme as proposed leads to the removal of around 48% of traffic from the roundabout thereby allowing freer flow of local traffic, including bus, and brings up to 7 minutes journey time savings. We examined the provision of dedicated bus lanes within the options considered but concluded that they would create operational issues on the roundabout. Since your letter of 4th December 2020, we have looked in more detail at the impacts arising from the potential addition of dedicated bus lanes. The traffic modelling we have undertaken demonstrates that including these would in fact reduce journey times for all traffic, including buses, particularly on the local road approaches in the evening peak. Therefore given this would offer no benefit to bus journey times there is no rationale for including in the scheme this any further. Further detailed information is provided in the enclosed Technical Note.

Email response from CEC to Transport Scotland letter – dated 29 April 2021

Modelling – we would be really grateful to see the full modelling projections which have still not been provided. We are concerned that modelling does not address medium term growth scenarios.

CEC Traffic Modelling Questions email – dated 25 May 2021

What they have requested (I'm not technical so if this doesn't make sense, please let me know) are the:

1. Traffic Modelling Calibration and Validation Report, and,
2. Scheme Assessment Report (Forecasting report)

ESESCR Sheriffhall Presentation for Joint Committee Meeting – Transport Scotland to CEC dated 26 May 2021

Slide 3:

The proposed Scheme will provide grade separation which will separate strategic and local traffic, thus reducing traffic conflicts and reducing congestion at Sheriffhall. Allows for faster and more reliable public transport journey times

ESESCR Deal Sheriffhall Presentation for Joint Committee Meeting - City Deal PMO summary of questions raised to TS - dated 26 May 2021

Cllr McVey (CEC) – query whether the calculation of 7 minute benefit for public transport related to land within the confines of the roundabout (and if dedicated lanes began within partner roads would that provide additional time savings)?

AECOM response to CEC Traffic Modelling Questions email – dated 27 May 2021

The A720 Sheriffhall Local Model Validation and Forecasting Report should hopefully contain the information you have requested. As it's a big file size, I'll send it to you via a filesharing site under separate email cover.

CEC response regarding CEC Traffic Modelling Questions email – dated 02 June 2021

Also, here are some of the technical questions, matter for discussion;

1. The report generally describes; an approach, existing conditions and the computer model development but unfortunately hasn't provided enough information to understand long term performance of the proposed scheme. Therefore, we would welcome a further discussion to understand in detail the predicted long term performance of the scheme (particularly on the local road network). To inform the conversation of this, it would be good get a presentation of the animations / detailed model results at the meeting.
2. The report also contains some statements that have generated concern, which again need further discussion. Statements inc:
 - 2a. *“the new design can only accommodate 25% of the predicted growth in traffic”*
 - 2b. A suggestion that the model of the new scheme was tested for years from 2024 to 2039 with only 25% of the predicted growth in traffic and even with this reduced amount, even at this the scheme failed to be able to accommodate the scaled back expected increase in traffic.
 - 2c. Table 6.8 shows calibration of the base model for the A6106, which contains observed and modelled journey times, an explanation on this would be welcomed.

ESESCR Deal Sheriffhall CEC modelling questions – TS response to CEC - dated 7 June 2021

Thank you for your email providing us with a note of your colleagues' availability and questions on the modelling work.

We have considered this further and we intend to give a presentation and provide further information on the traffic modelling to the Transport Appraisal Board. Once the dates are confirmed, we will let you know.

Special ESESCR Deal Transport Appraisal Board Meeting – advance circulation by AECOM of traffic modelling reports TEAR and LMVFR - dated 11 June 2021

In advance of the Special ESESCR Deal Transport Appraisal Board Meeting - Traffic modelling associated with the A720 Sheriffhall Roundabout scheme, we have forwarded the traffic modelling reports TEAR and LMVFR for your information. As these are big file sizes, we have sent them via a file sharing site under separate email cover (via AECOM SendFiles site).

ESESCR Deal Sheriffhall Modelling Presentation to TAB - City Deal PMO circulation of agenda - dated 22 June 2021

Sheriffhall Traffic Modelling Presentation/Discussion

- a) Baseline Traffic Conditions
- b) Traffic Modelling and Computer Simulations
- c) The Proposed Scheme
- d) Traffic Forecasting and Future Demand at Sheriffhall Roundabout
- e) A720 Operating Conditions
- f) Public Transport - Bus Routes and Journey Times
- g) Summary and Conclusions

Special ESESCR Deal Transport Appraisal Board Meeting - Traffic Modelling associated with the A720 Sheriffhall Roundabout Scheme dated 23 June 2021

Please refer to Annex C for presentation.

ESESCR Deal Transport Appraisal Board Meeting on 28 June 2021 – meeting note extract

- AN stated that the special TAB meeting on modelling for Sheriffhall was a helpful meeting, and that the slides have been shared with senior elected members.
- It was agreed that senior elected members would be interested in seeing the presentation from the modelling workshop that was held the previous week.
- It was agreed to schedule in a standalone meeting with the Joint Committee in advance of the main committee to allow leaders to view and consider the modelling presentation. Invitations to be extended to Transport conveners as appropriate.
- AP asked for views on what members would be interested in seeing.
- It was agreed that:
 - Members would be interested in seeing the modelling presentation in full

Special ESESCR Deal Joint Committee Meeting - Traffic Modelling associated with the A720 Sheriffhall Roundabout Scheme dated 4 August 2021

Please refer to Annex C for same presentation as above.

ESESCR Deal Progress Report – email from TS – dated 24 August 2021

Engagement with CRD partners on non-technical aspects of the scheme. The focus in this period was on traffic modelling.

Regional Prosperity Framework – TS response to query received from private party through ESESCR Deal partners regarding Traffic Modelling – email dated 24 August 2021

The traffic modelling of the project was completed prior to publication of the draft Orders and Environmental Statement in December 2019. This is normal practice on transport infrastructure projects, which typically span over several years. The traffic model pre-dates publication of both the draft Regional Prosperity Framework consultation document and also the National Transport Strategy, and the concepts of 20 minute towns and 20% reduction in car kilometres being explicit in national policy.

The need for the proposed improvements at Sheriffhall Roundabout relates to reducing congestion at the Sheriffhall Roundabout caused by shared strategic and local traffic use. The upgrading of the Sheriffhall roundabout will remove a barrier to both local and strategic movements and provide benefits for businesses, travellers and local communities. The proposed scheme will improve road safety and journey times for all road users, bring economic benefits across Edinburgh and South-East Scotland and improve accessibility for all modes of transport including public transport and walking and cycling, thus supporting fair regional access and economic growth. We remain content that there is a need for the proposed scheme.

In summary the traffic modelling assesses the traffic impacts of the proposed Scheme as part of the overall operational and impact assessment work but the need for the scheme is not defined by the traffic volumes themselves, rather the operational conflict between strategic and local road networks.

ESESCR Deal – TS provision of confirmed text for Leaders Report after Joint Committee meeting on 03 September 2021 – email dated 14 September 2021 (extract)

To note that partners, including SEStran and Transport Scotland, are committed to monitoring the impacts of the proposed scheme and to working together to address any unforeseen impacts on the local road network that can specifically be attributed to the Sheriffhall Scheme.

ESESCR Deal – TS provision of Sheriffhall Wider Impacts Paper for comment – dated 21 September 2021 (extract)

- Section 3 – Summary of Key Transport Problems and Issues (Extract)
Sheriffhall Roundabout carries high volumes of traffic and experiences issues relating to ongoing efficiency particularly during peak periods. Manual Classified Count (MCC) surveys undertaken in May 2017 indicate that 61,800 vehicles passed through the at-grade Sheriffhall Roundabout during the 12-hour survey period between 07:00 hours and 19:00 hours. To provide an indication of recent growth at Sheriffhall Roundabout, 59,000 vehicles were recorded passing through the junction in October 2014 and 57,700 vehicles were recorded passing through the junction in October 2013. It should be noted, however, that the changes in local trip patterns are likely to have been influenced by the temporary closure of the A6106 (North) of Sheriffhall Roundabout during the October 2014 surveys.

Significant localised queuing can be experienced at Sheriffhall Roundabout, particularly during the AM and PM peak periods. Queue length surveys were undertaken at Sheriffhall Roundabout over a 12-hour period on Thursday 02 October 2014 to assist in establishing operating conditions on the approach roads to the Roundabout. In the AM peak, the heaviest queuing was observed on the A720 (East) approach to Sheriffhall Roundabout with an observed queue length of 72 Passenger Car Units (PCUs). In the opposite direction on the A720 (West), a maximum queue length of 32 PCUs was observed in the AM peak. In the PM peak, the maximum queue length was observed on the A720 (West) approach to Sheriffhall Roundabout with a queue length of 195 PCUs. In the opposite direction on the A720 (East), a maximum queue length of 51 PCUs was observed on the approach to Sheriffhall Roundabout.

Journey time surveys were undertaken in May 2017 to assist in defining current operating conditions. Examination of the average daily directional speeds on the A720 indicates that eastbound speeds at Straiton were 60mph but reduced to 45mph between Lasswade and Gilmerton, and to 23mph on the approach to Sheriffhall Roundabout before increasing thereafter to 60mph at Millerhill. Examination of the average daily directional speeds also indicates that westbound speeds were 58mph at Millerhill but reduced to 31mph on the approach to Sheriffhall Roundabout. Whilst westbound speeds increased to 52mph west of Sheriffhall Roundabout, speeds reduced again to 31mph at Straiton. The variation between the minimum and maximum speeds recorded on the A720 provides a clear indication of the effects of delays and congestion on the approach to Sheriffhall Roundabout.

To assist in assessing road safety conditions, information on all road traffic collisions involving personal injury accidents on the A720 between Lothianburn Junction and Old Craighall Roundabout was obtained from Transport Scotland for the ten-year period between 2007 and 2016 inclusive. Analysis of road traffic collisions on the A720 indicates that the total number of personal injury accidents between 2007 and 2016 has fluctuated between 24 accidents in 2009 and 2010, and 37 accidents in 2014 with an annual average of 30 accidents. Analysis of road traffic accidents between 2007 and 2016 indicates that there has been a total of 299 personal injury accidents with 1.3% recorded as fatal accidents, 6.4% recorded as serious accidents and 92.3% recorded as slight accidents.

Underlying traffic volumes on the road network around Edinburgh are expected to increase over the next 20 years. This increase is estimated from the impact of planned developments, such as South East Wedge (Shawfair) development and growth areas, such as those around the West of Edinburgh, as well as the forecast increase in employment across the region. Congestion and delay on the A720 will increase, particularly around key junctions such as Sheriffhall Roundabout, and it is anticipated that traffic conditions in the vicinity of the roundabout will deteriorate significantly.

- Section 4 – Socio-Economic Context (Extract)

The principal operational benefits of the proposed Scheme would be to improve the movement of traffic on the A720 between Gilmerton and Old Craighall and the principal economic benefits associated with the proposed Scheme are likely to result from savings in transit time. The operational assessment indicates that overall, the proposed Scheme would reduce journey times through the junction for A720 strategic traffic, thus helping to address the issues outlined above. The traffic and economic impacts of the proposed Scheme are further discussed within Section Six.

- Section 6 – Traffic and Economic Impacts (Extract)

As discussed within the DMRB Stage 3 Scheme Assessment, the principal operational impacts of the proposed Scheme will be to improve the movement of traffic on the A720 between Gilmerton and Old Craighall by providing grade-separation of the A720 at the existing Sheriffhall Roundabout and reducing the conflict between traffic movements.

The operational assessment indicates that average journey times on the A720 during the AM peak hour, in 2024, will decrease by 6% (0.5mins) and 15% (3.9mins) in the eastbound and westbound directions respectively. During the PM peak hour, the corresponding average journey times will decrease by 61% (11.7mins) and 36% (10.3mins). Overall, the proposed Scheme will reduce journey times through the junction for A720 traffic.

The operational assessment also indicates that average journey times on the A7 during the 14-Hour average weekday period will decrease by 30% (2.7mins) and 23% (1.7mins) in the northbound and southbound directions respectively. The average journey times on the A6106 during the 14-Hour average weekday period will decrease by 8% (0.2mins) and 72% (7.0mins) in the northbound and southbound directions respectively. Overall, the proposed Scheme will reduce journey times through the junction for A7 and A6106 local traffic.

ESESCR Deal – Sheriffhall Wider Impacts Paper Summary Presentation to TAB Meeting – dated 04 October 2021 (extract)

Slide 4 – Key Findings

- The proposed Scheme will:
 - Improve journey times
 - Reduce journey time variability

- Increase resilience to disruptive events such as accidents
- Improve the local environment through reduced queueing
- Reduce severance for all modes of transport

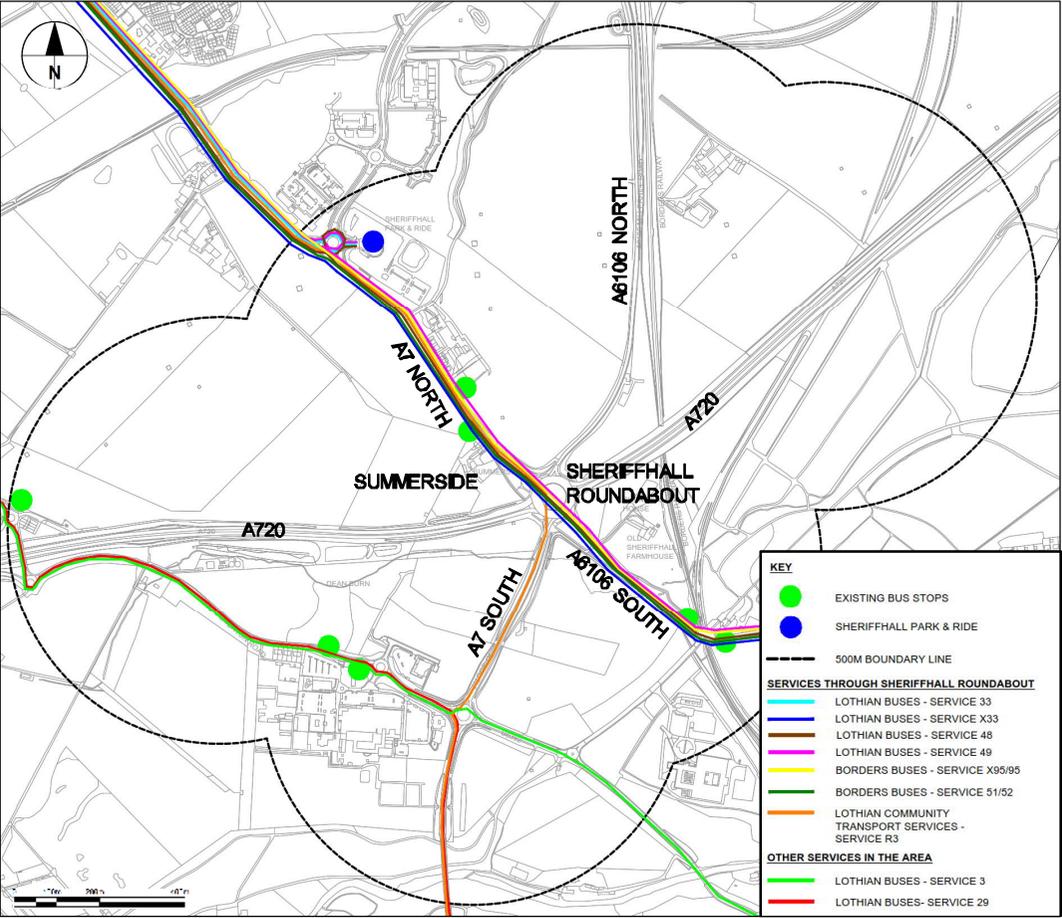
ANNEX C

**A720 Sheriffhall Roundabout Public Transport & Active Travel Technical
Workshop dated 06 Aug 2020**

Part 1 – Public Transport Review

Existing Public Transport Provision

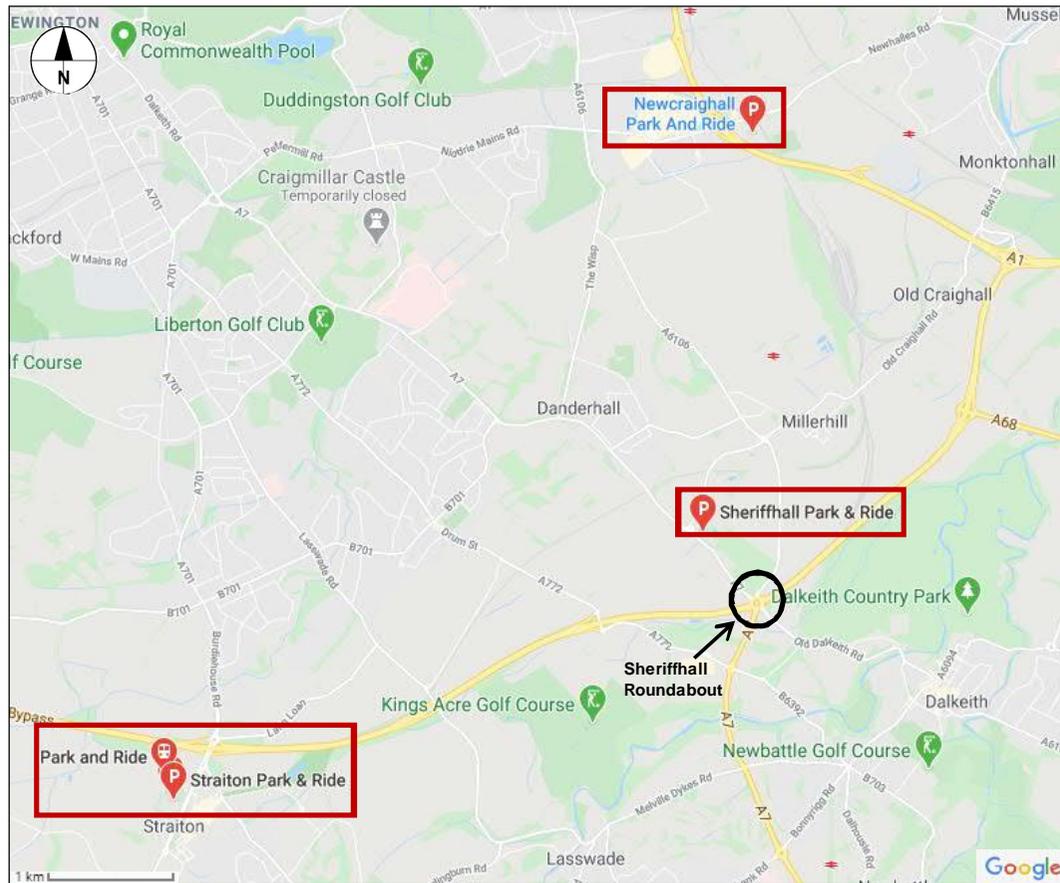
Existing Public Transport Provision



Existing Bus Services

Operator	Service	Route
Lothian Buses	3	Clovenstone - Mayfield
	29	Silverknowes - Gorebridge
	33 X33	Wester Hailes – Sheriffhall Park & Ride Edinburgh – Newtongrange
	48	Gorebridge – Royal Infirmary
	49	Rosewell – Fort Kinnaird
Borders Buses	51/52	Jedburgh to Edinburgh via St Boswells, Earlston, Lauder, Oxton, Pathhead
	95A, X95	Edinburgh to Carlisle via Newtongrange, Galashiels, Selkirk, Hawick, Langholm
Lothian Community Transport Services	R3	Dalkeith, Danderhall, Newton Village, Millerhill, ASDA (The Jewel)

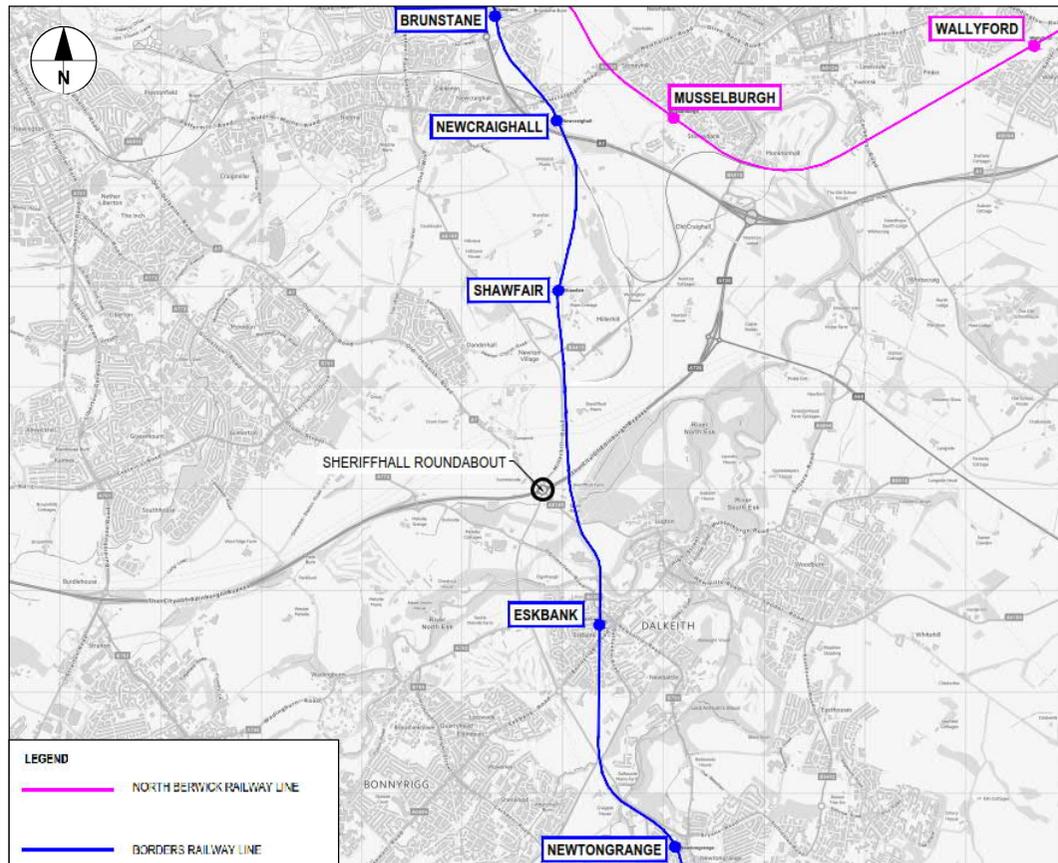
Existing Public Transport Provision



Park & Ride facilities within 5km of the scheme:

- Sheriffhall Park & Ride
- Newcraighall Park & Ride (3.7km north of Sheriffhall Roundabout)
- Straiton Park & Ride (4.9km west of Sheriffhall)

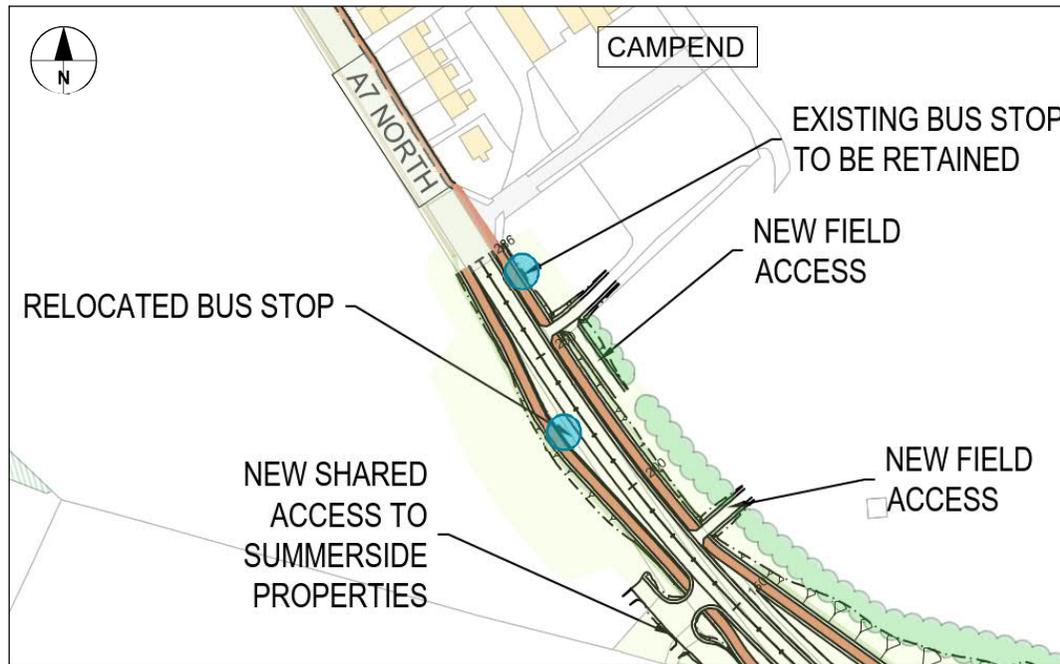
Existing Public Transport Provision



Rail Services within 5km of Sheriffhall:

- Borders Railway line between Edinburgh (Waverley) and Tweedbank
- North Berwick Railway line between Edinburgh (Waverly) and North Berwick

Effect of the Proposed Scheme on Public Transport



- Like-for-like provision: no dedicated bus lanes or additional bus stops in current design.
- Existing bus stop on A7 North northbound relocated approximately 110m north of its current location.
- Existing bus stop on A7 North southbound to be retained at its current location
- No direct impact on Rail or Park & Ride facilities.
- Local traffic (including bus services) will benefit from improved traffic conditions on local roads due to separation between strategic and local traffic.

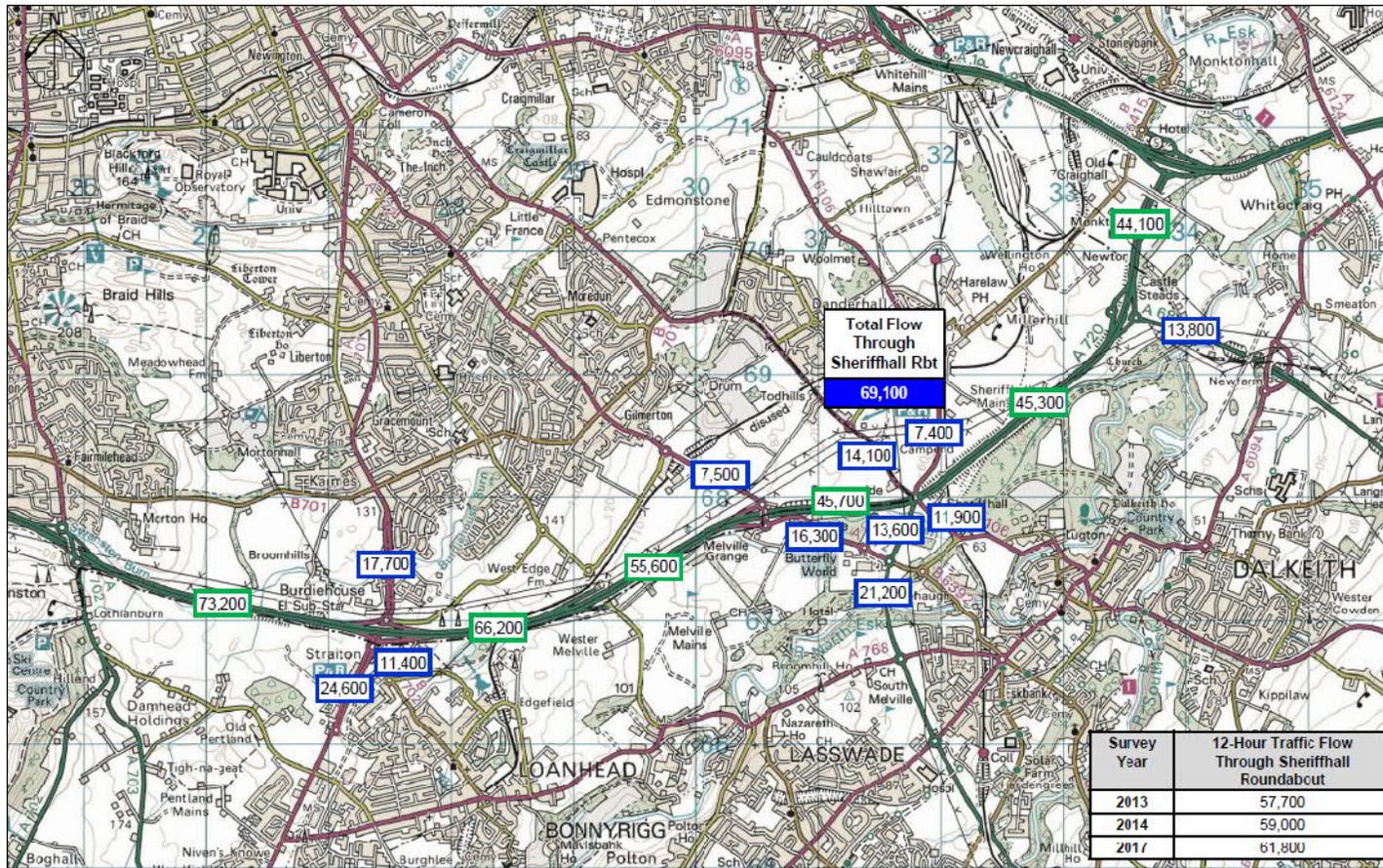
Operational Effects of the Proposed Scheme



A720 Corridor Key Junctions and Primary Traffic Survey Locations

- May 2017
- 14-Hour Survey Period (06:00 - 20:00 hours)

Operational Effects of the Proposed Scheme

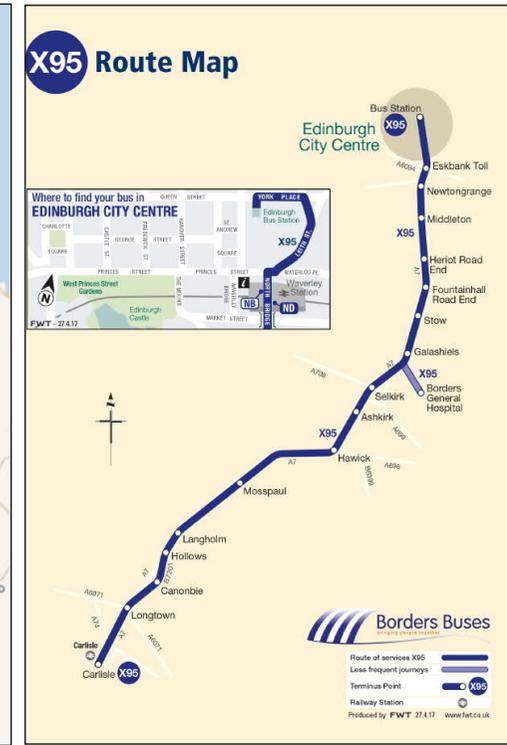
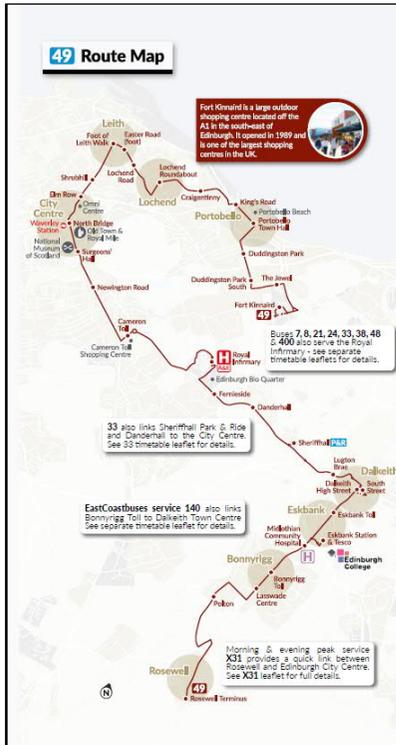
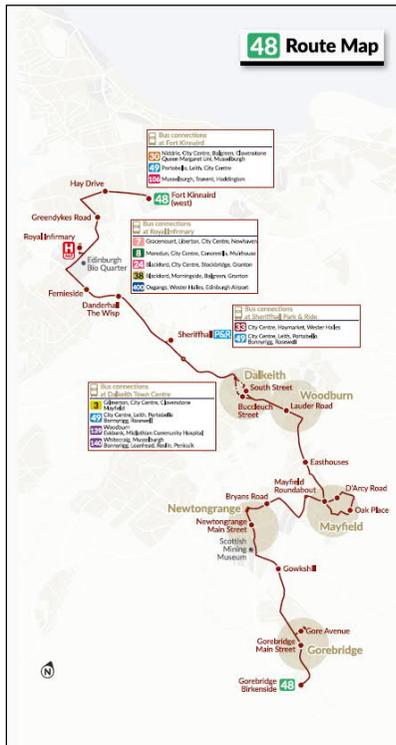
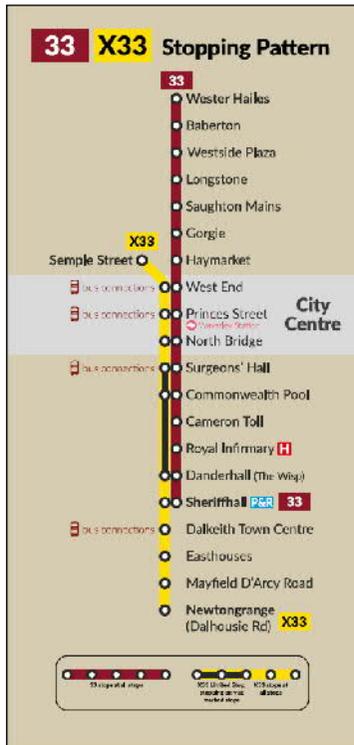


Manual Classified Counts

- May 2017
- 14-Hour Observed All-Vehicle Traffic Flows
- A720 44,100 to 73,200 vpd
- Increasing demand through Sheriffhall Roundabout.
- **A720 Through Traffic accounts for 33,500 (48%) of All Traffic at Sheriffhall Roundabout.**

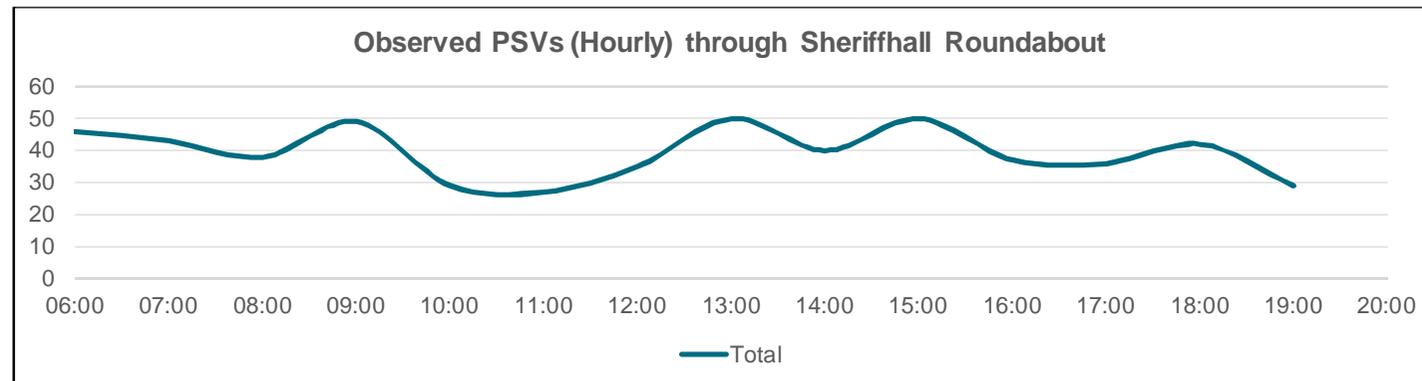
Operational Effects of the Proposed Scheme

Bus Services through Sheriffhall Rbt



Operational Effects of the Proposed Scheme

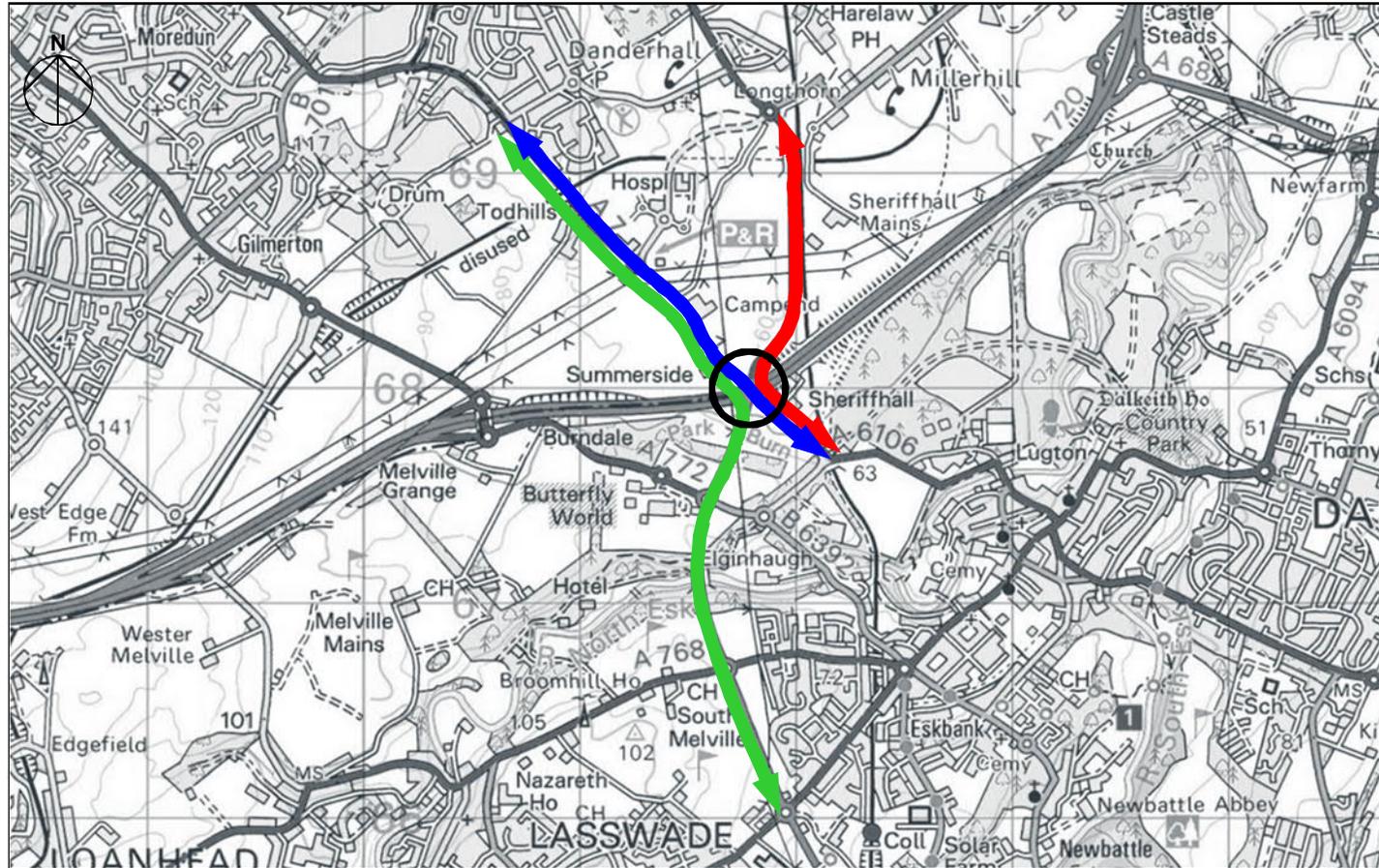
Approach Road	A7 (N)	A6106 (N)	A720 (E)	A6106 (S)	A7 (S)	A720 (W)	Total
A7 (N)	0	0	12	124	15	3	154
A6106 (N)	0	0	0	4	2	2	8
A720 (E)	6	0	0	3	13	77	99
A6106 (S)	120	0	5	0	0	17	142
A7 (S)	14	2	15	1	0	2	34
A720 (W)	6	1	89	17	1	0	114
Total	146	3	121	149	31	101	551



PSV Turning Movements at Sheriffhall Roundabout

- May 2017
- 14-Hour PSV Flows
- 551 PSVs through Rbt
- **A720 PSVs = 166 (30%)**
- **A7(N) / A6106(S) PSVs = 244 (44%)**
- Ave PSVs (total) = 40/hr two-way
- Generally Uniform Profile
- Ave PSVs (A7/A6106) = 17/hr two-way

Operational Effects of the Proposed Scheme



Routes and Journey Times Through Sheriffhall Roundabout

- A7 Route (4km)
- A6106 Route (2km)
- A7 / A6106 Route (2km)

Operational Effects of the Proposed Scheme

A7 Route - Journey Times Savings due to Proposed Scheme

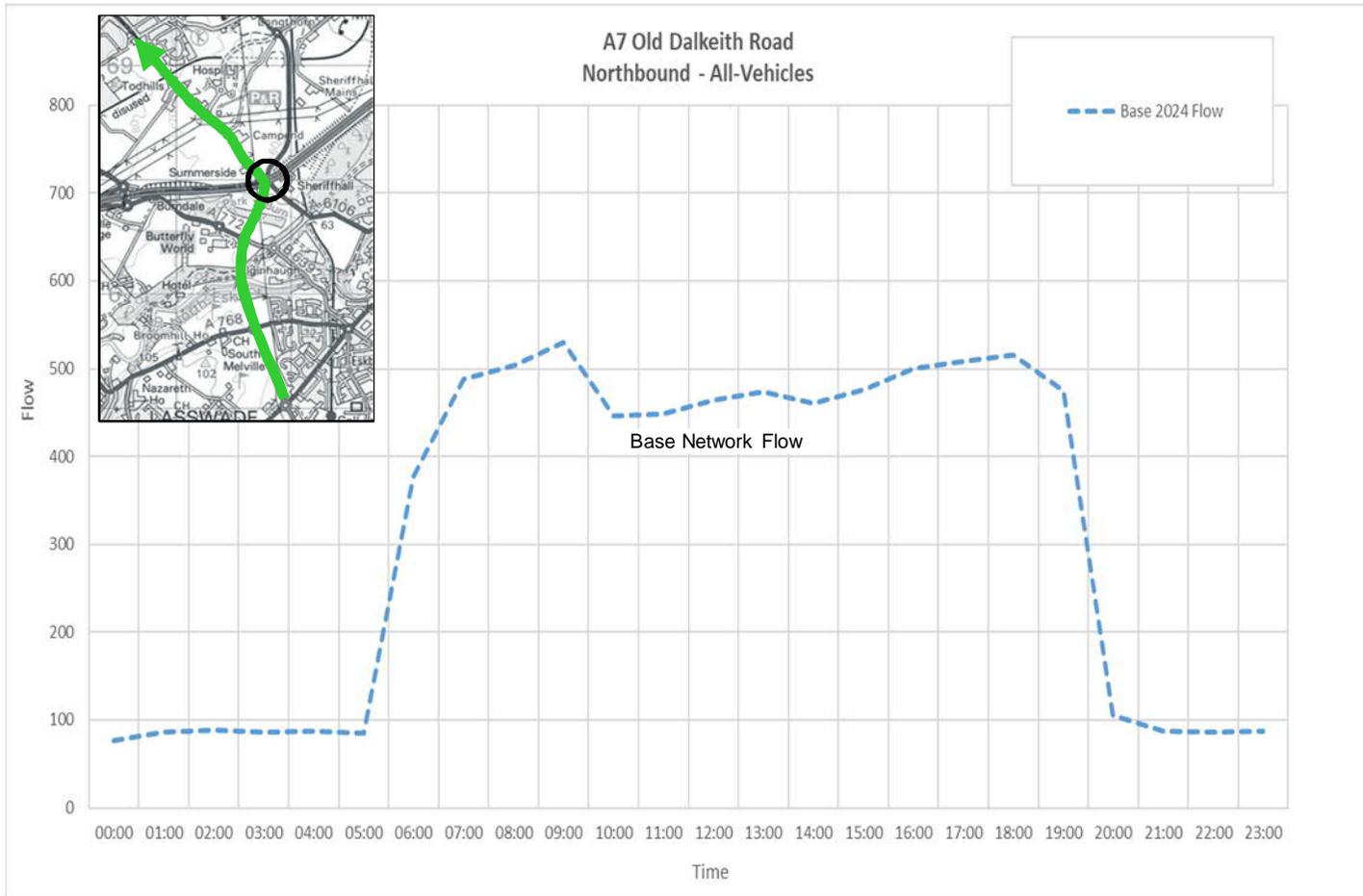


Time Period	Direction	Base 2024 Speed (mph)	Design 2024GS Speed (mph)	Speed Diff. (mph)	Base 2024 Time (mins)	Design 2024GS Time (mins)	Time Diff. (mins)	Time Diff. (%)
Total (14-Hour)	N/b	16	23	+7	8.8	6.2	-2.7	-30%
Total (14-Hour)	S/b	20	26	+6	7.3	5.6	-1.7	-23%

Note: The above results are based on the averages of 15 simulation runs over a 4km section of the A7.

- Comparison of Journey Speeds and Times on the A7 Old Dalkeith Road
- 2024 Year of Opening
- 14-Hour Time Savings: 23% - 30%

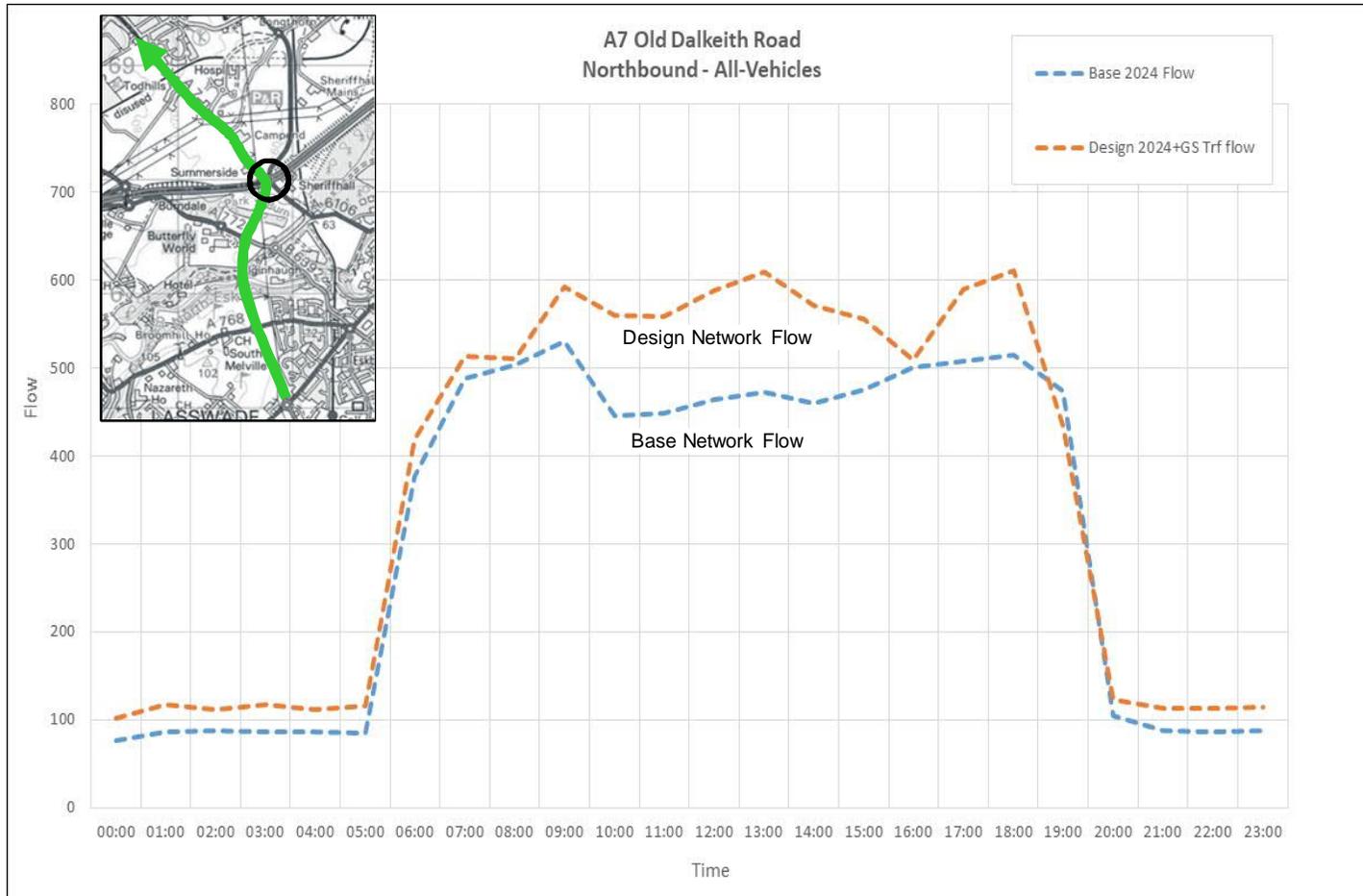
Operational Effects of the Proposed Scheme



A7 Route - Northbound All-Vehicle Journey Times & Flows

- A7 Old Dalkeith Road
- 2024 Year of Opening

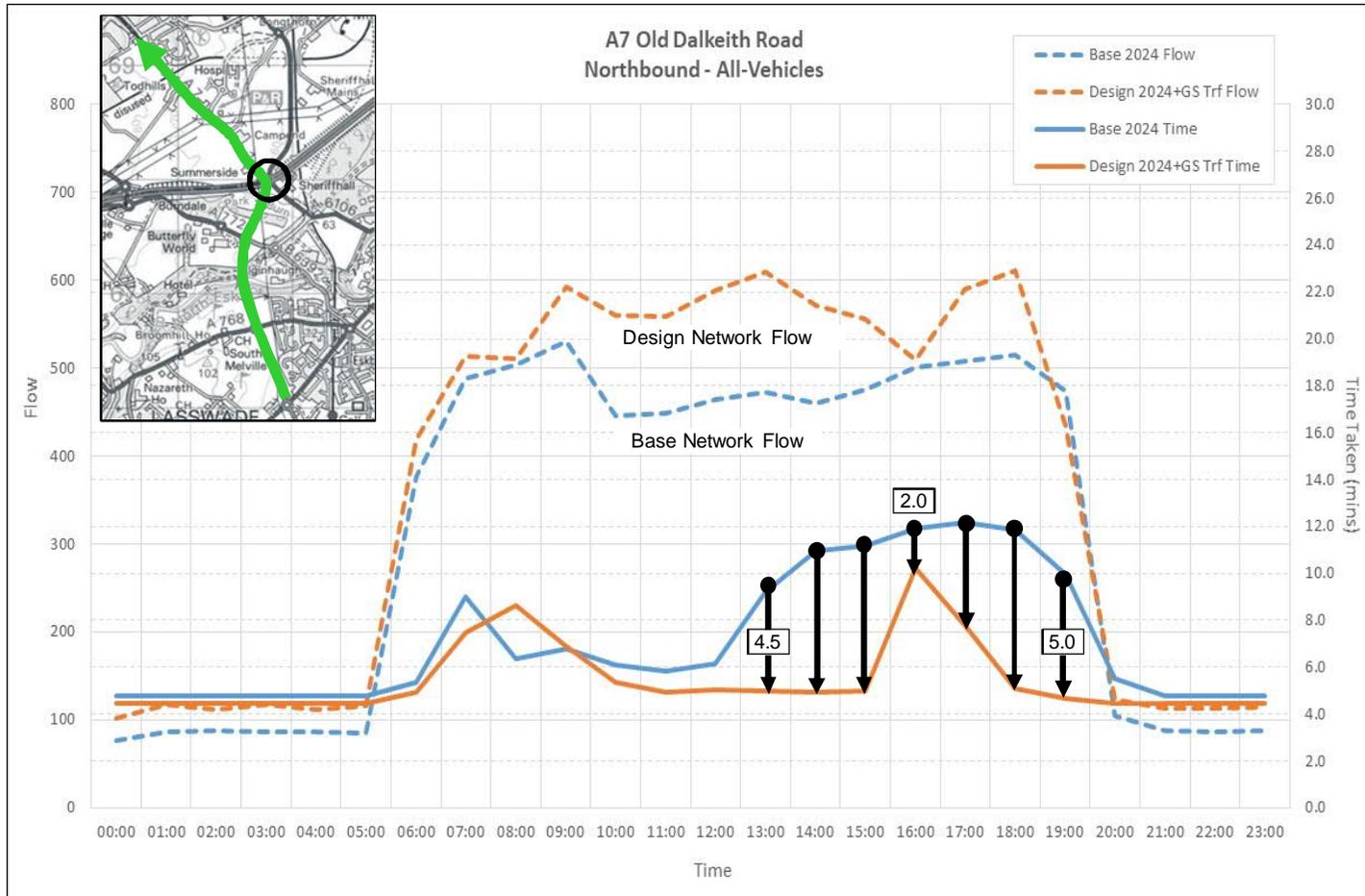
Operational Effects of the Proposed Scheme



A7 Route - Northbound All-Vehicle Journey Times & Flows

- A7 Old Dalkeith Road
- 2024 Year of Opening

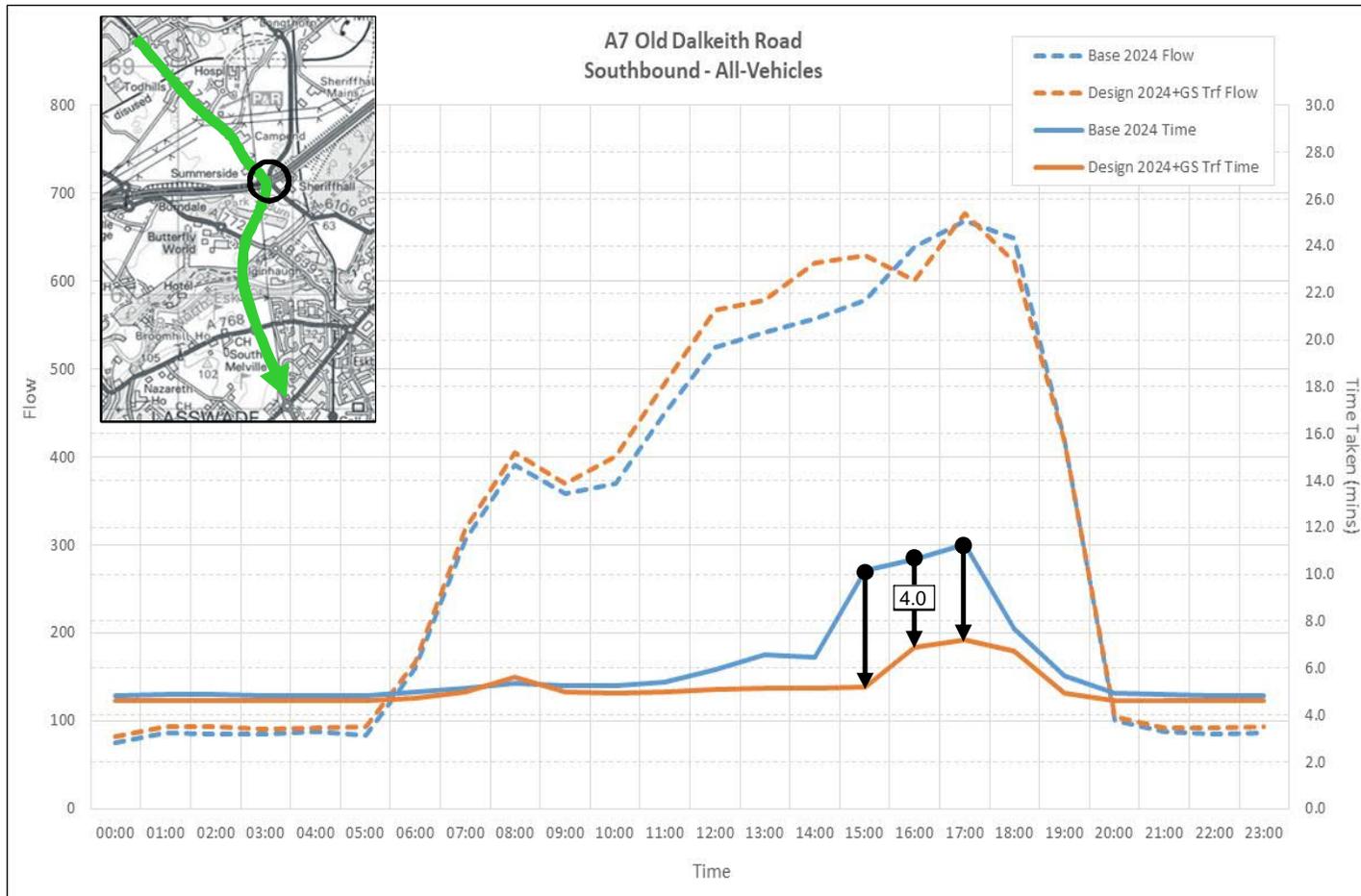
Operational Effects of the Proposed Scheme



A7 Route - Northbound All-Vehicle Journey Times & Flows

- A7 Old Dalkeith Road
- 2024 Year of Opening
- Proposed scheme will deliver saving in journey times even with predicted future traffic demand and improved reliability.

Operational Effects of the Proposed Scheme



A7 Route - Southbound All-Vehicle Journey Times & Flows

- A7 Old Dalkeith Road
- 2024 Year of Opening
- Proposed scheme will deliver saving in journey times even with predicted future traffic demand and improved reliability.

Operational Effects of the Proposed Scheme

A6106 Route - Journey Times Savings due to Proposed Scheme

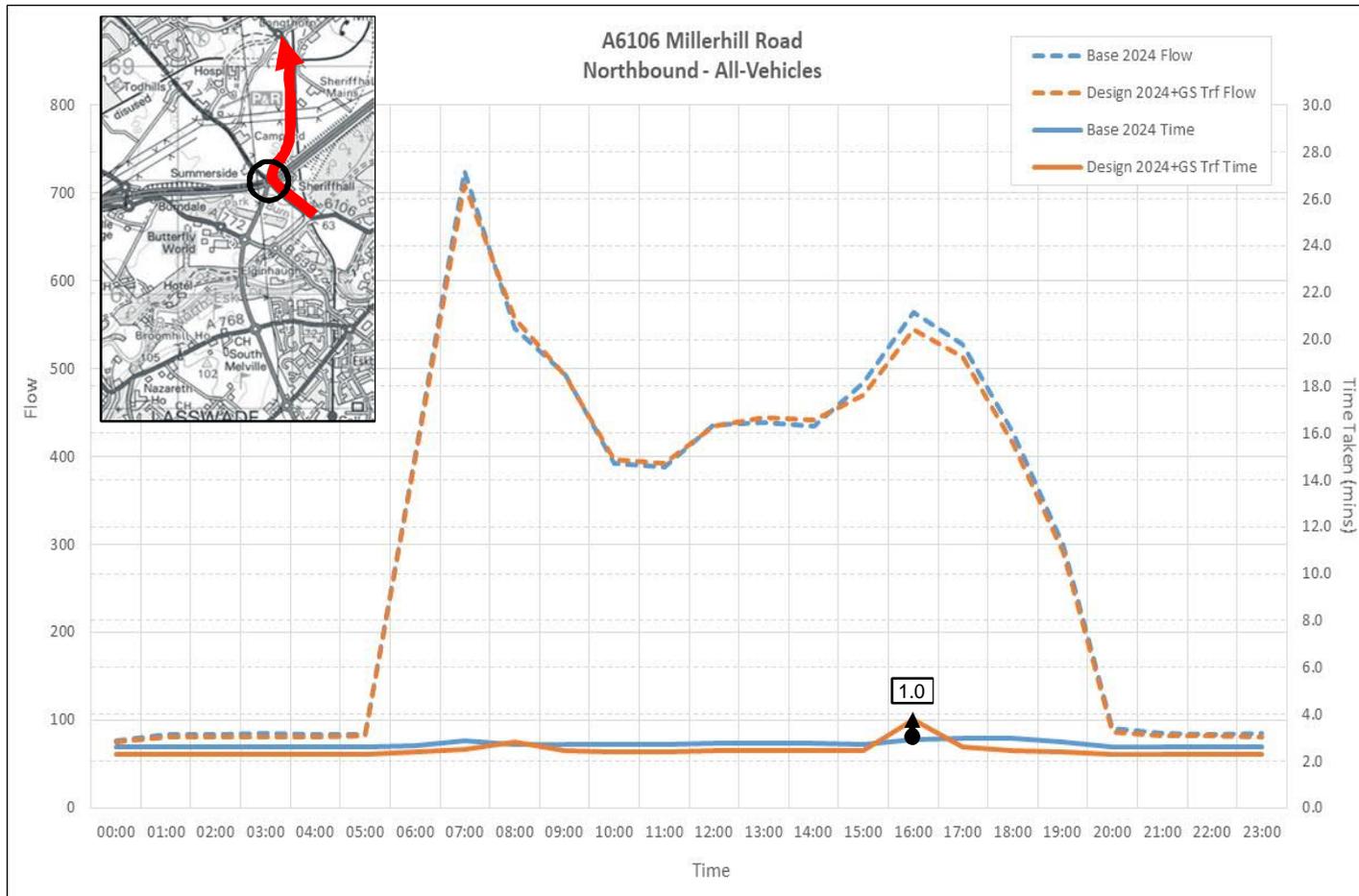


Time Period	Direction	Base 2024 Speed (mph)	Design 2024GS Speed (mph)	Speed Diff. (mph)	Base 2024 Time (mins)	Design 2024GS Time (mins)	Time Diff. (mins)	Time Diff. (%)
Total (14-Hour)	N/b	26	28	+2	2.8	2.6	-0.2	-8%
Total (14-Hour)	S/b	7	26	+19	9.7	2.7	-7.0	-72%

Note: The above results are based on the averages of 15 simulation runs over a 2km section of the A6106.

- Comparison of Journey Speeds and Times on the A6106 Millerhill Road
- 2024 Year of Opening
- 14-Hour Time Savings: 8% - 72%

Operational Effects of the Proposed Scheme

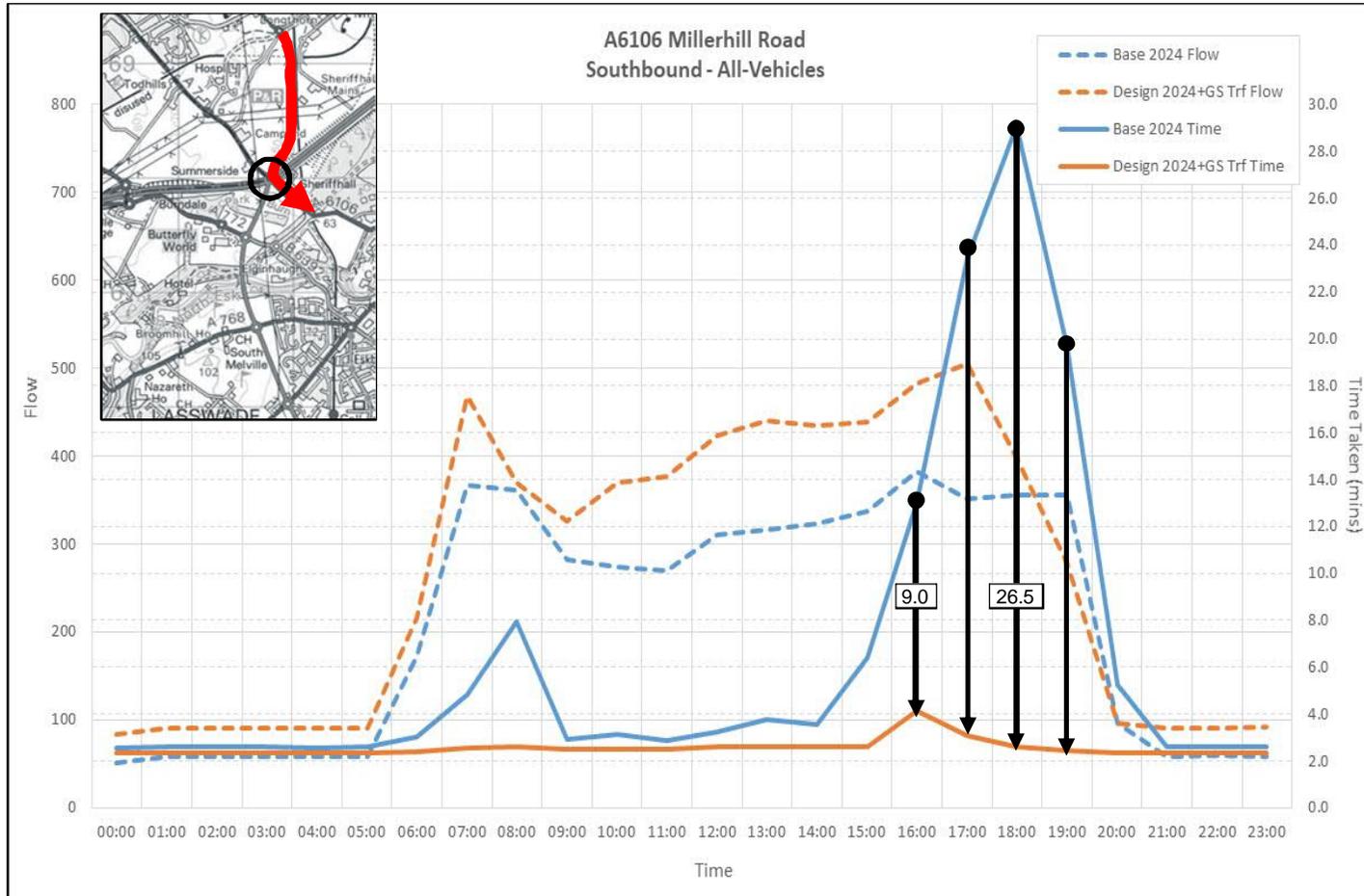


A6106 - Northbound

All-Vehicle Journey Times & Flows

- A6106 Millerhill Road
- 2024 Year of Opening
- As journey times are already low, the predicted changes in journey times are not significant.

Operational Effects of the Proposed Scheme

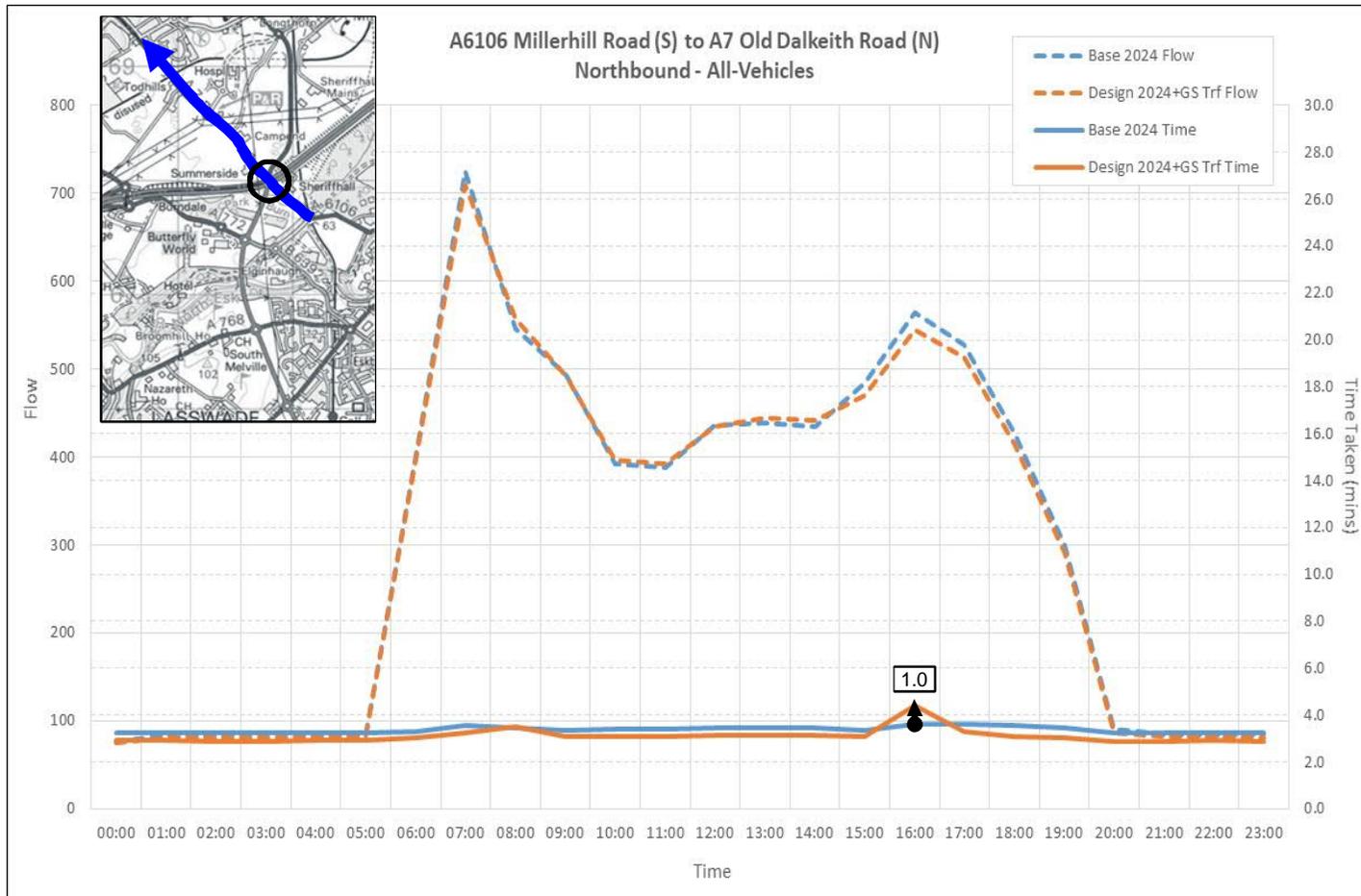


A6106 - Southbound

All-Vehicle Journey Times & Flows

- A6106 Millerhill Road
- 2024 Year of Opening
- Proposed scheme will deliver saving in journey times even with predicted future traffic demand and improved reliability.

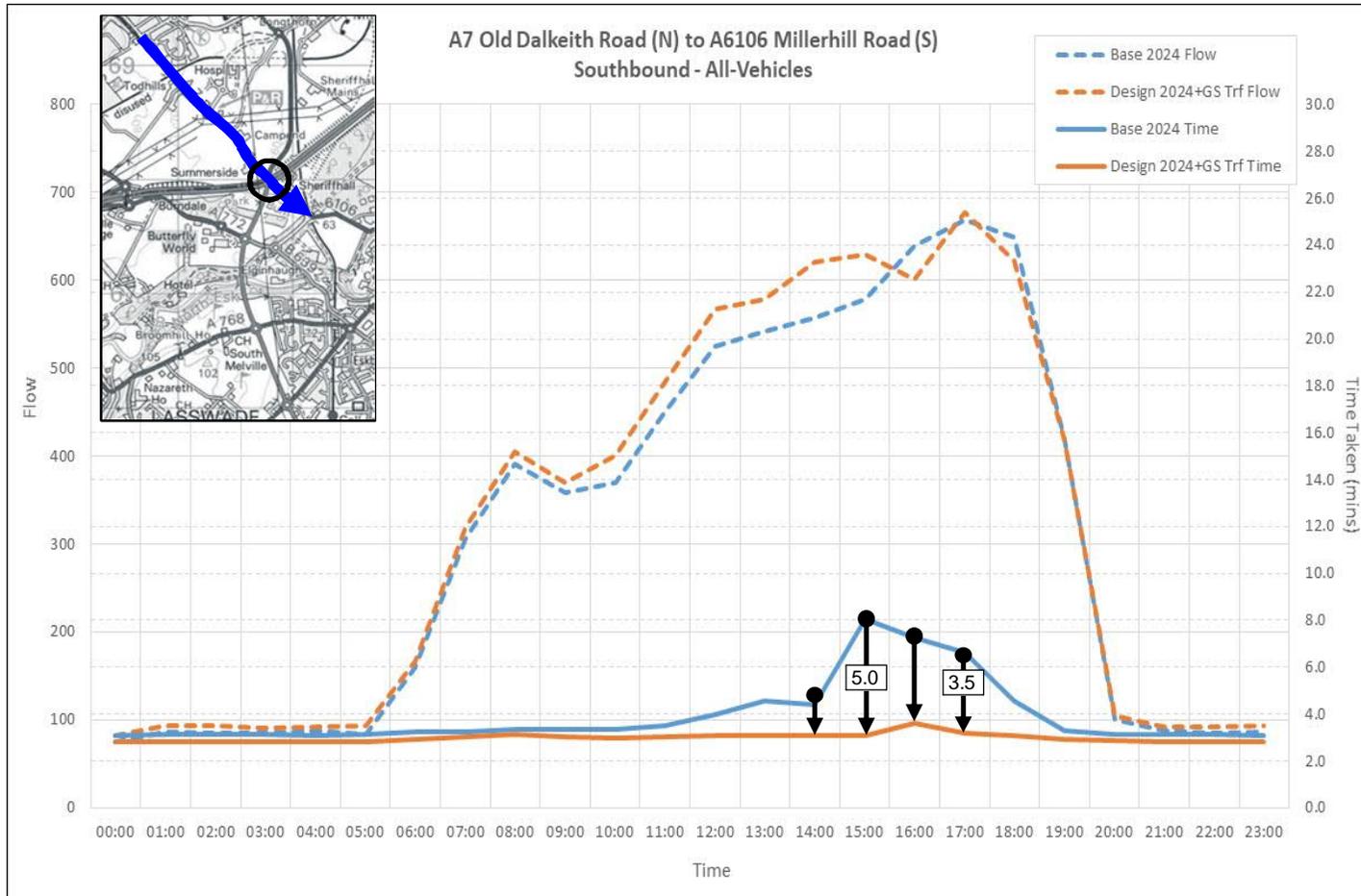
Operational Effects of the Proposed Scheme



A7 / A6106 - Northbound All-Vehicle Journey Times & Flows on

- Bus Route:
A6106(S) to A7(N)
- 2024 Year of Opening
- As journey times are already low, the predicted changes in journey times are not significant.

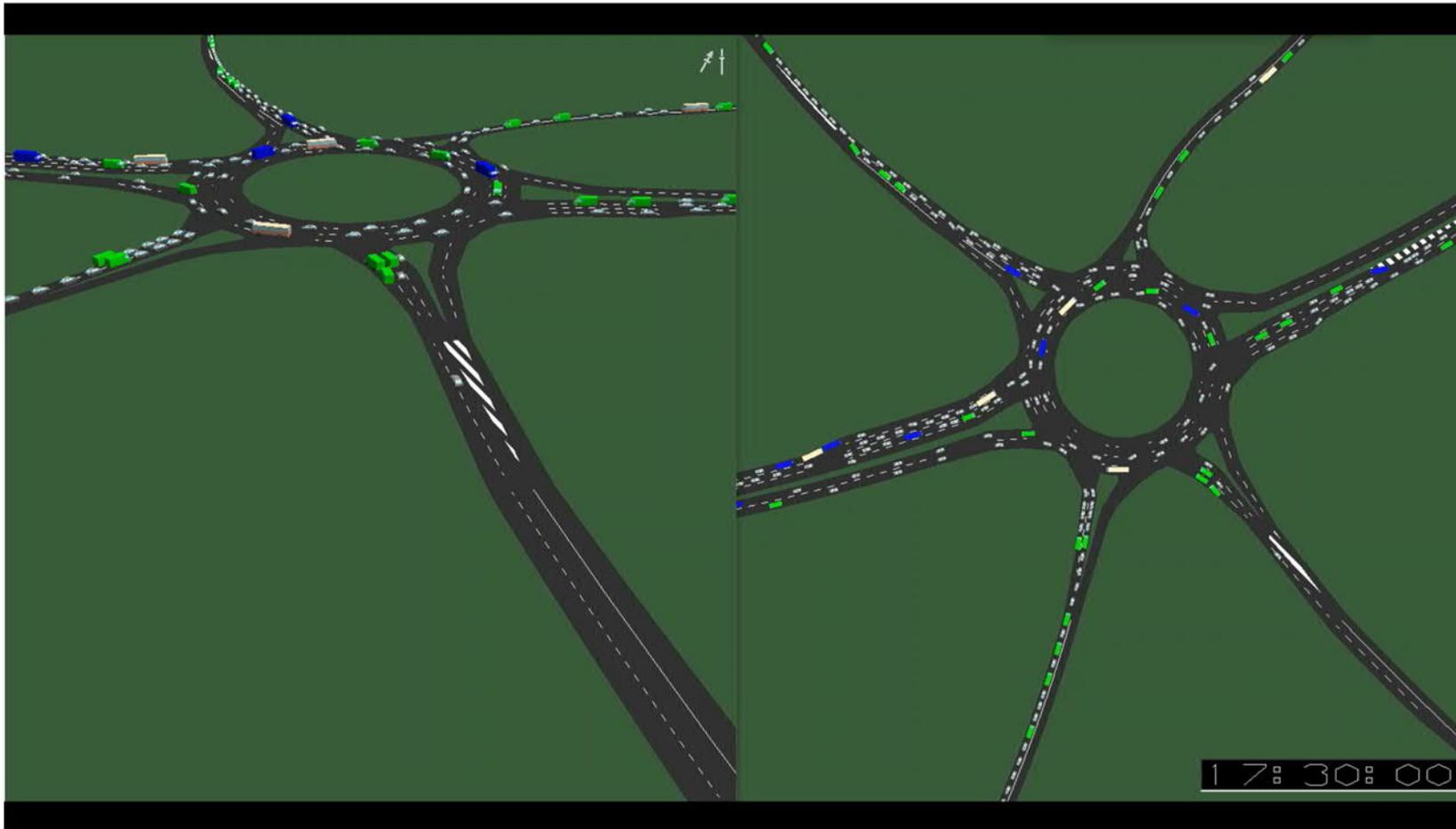
Operational Effects of the Proposed Scheme



A7 / A6106 - Southbound All-Vehicle Journey Times & Flows

- Bus Route: A7(N) to A6106(S)
- 2024 Year of Opening
- Proposed scheme will deliver saving in journey times even with predicted future traffic demand and improved reliability.

Operational Effects of the Proposed Scheme



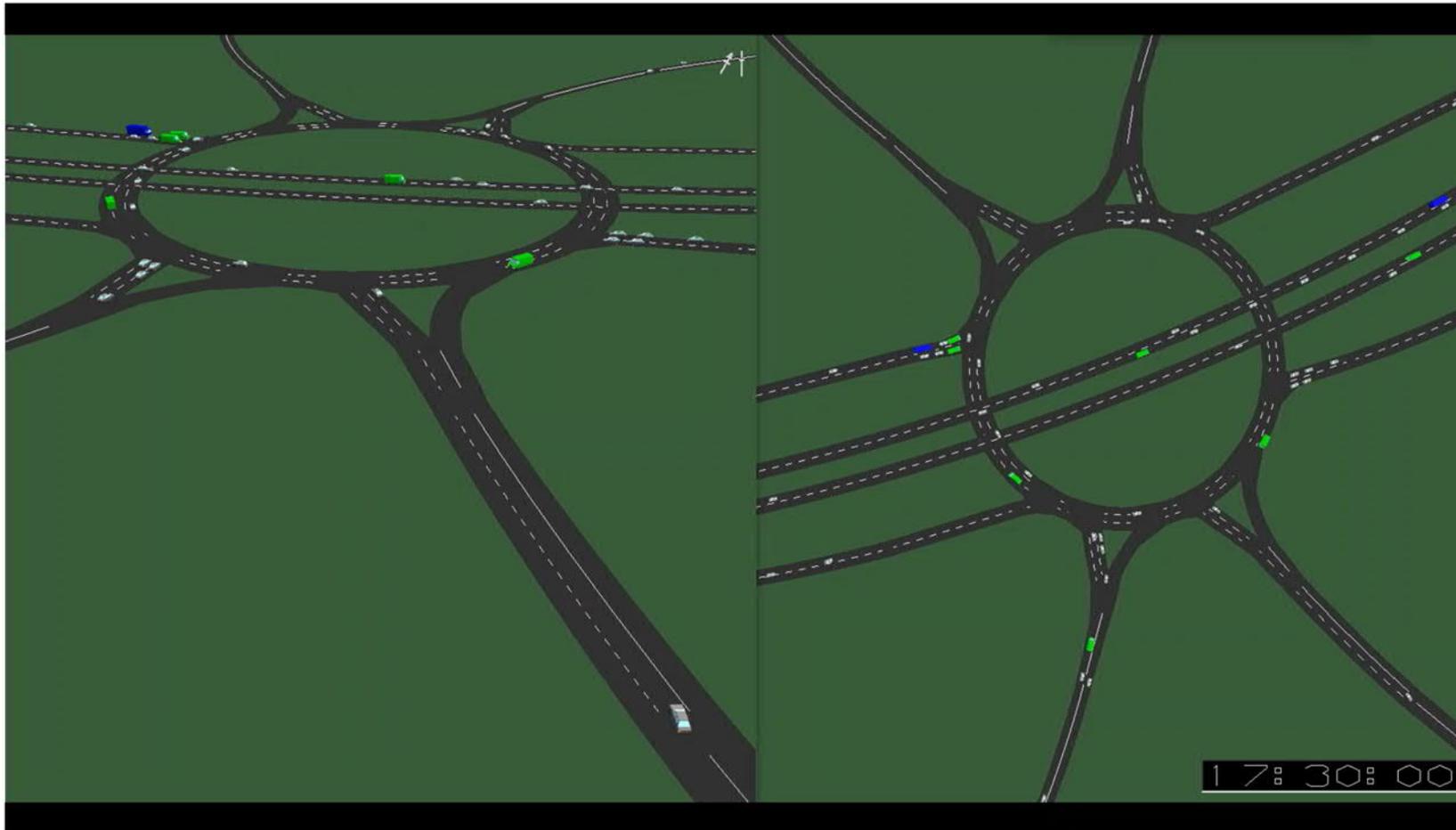
**Paramics Simulation
PM Peak Period**

Scenario: Base

Year: 2024

Time: 17:30 to 17.35

Operational Effects of the Proposed Scheme



**Paramics Simulation
PM Peak Period**

Scenario: Design

Year: 2024

Time: 17:30 to 17:35

Any questions?

Bus Prioritisation Review

Scheme Objectives

- A. Improve the movement of traffic on the A720 between Gilmerton and Old Craighall by providing grade-separation of the A720 at the existing Sheriffhall Roundabout;
- B. Reduce the conflict between strategic and local traffic;
- C. Minimise traffic impact of local proposed developments in Midlothian, East Lothian and City of Edinburgh on the A720 between Gilmerton Junction and Old Craighall Junction and approach roads;
- D. Improve road safety for all users on the A720 and approach roads between Gilmerton Junction and Dalkeith Northern Bypass;
- E. Minimise intrusion of the new works on the natural environment, cultural heritage and people whilst enhancing the local environment where opportunities arise;
- F. Facilitate integration for different modes of transport along and across the A720 corridor between Gilmerton Junction and the Dalkeith Northern Bypass; and
- G. Reduce severance by improving accessibility across the A720 for all users.

National Transport Strategy 2 – Priorities & Vision



Reduces inequalities

- Will provide fair access to services we need
- Will be easy to use for all
- Will be affordable for all



Takes climate action

- Will help deliver our net-zero target
- Will adapt to the effects of climate change
- Will promote greener, cleaner choices



Helps deliver inclusive economic growth

- Will get people and goods where they need to get to
- Will be reliable, efficient and high quality
- Will use beneficial innovation



Improves our health and wellbeing

- Will be safe and secure for all
- Will enable us to make healthy travel choices
- Will help make our communities great places to live

NTS2 Vision

“We will have a sustainable, inclusive, safe and accessible transport system, helping deliver a healthier, fairer and more prosperous Scotland for communities, businesses and visitors”

Bus Prioritisation Design Opportunities



Reduces inequalities

- Will provide fair access to services we need
- Will be easy to use for all
- Will be affordable for all



Takes climate action

- Will help deliver our net-zero target
- Will adapt to the effects of climate change
- Will promote greener, cleaner choices



Helps deliver inclusive economic growth

- Will get people and goods where they need to get to
- Will be reliable, efficient and high quality
- Will use beneficial innovation



Improves our health and wellbeing

- Will be safe and secure for all
- Will enable us to make healthy travel choices
- Will help make our communities great places to live

1. Provide fair access to services
2. Promote cleaner, greener choices
3. Provide more reliable services
4. Provide safe and secure travel options for all

Bus Priority Design Standards & Guidelines

The bus priority options considered for the Sheriffhall Scheme have been developed in accordance with the following standards and guidelines:

- Network Management Notes – Bus Priority (The Chartered Institution of Highways & Transportation – CIHT)
- Edinburgh Street Design Guidance, Part C – Detailed Design Manual – PT3 (City of Edinburgh Council – CEC)
- National Roads Development Guide (Society of Chief Officers of Transportation in Scotland – SCOTS)
- Local Transport Note 1-97 (Department for Transport – DfT)
- Midlothian Council (MLC) have advised there are no local standards on bus priority and that national guidelines would apply. The standards listed above have therefore been considered relevant to the Sheriffhall scheme.

Bus Priority Standards & Guidelines

The standards and guidelines considered identify the following categories of bus priority measures:

– Bus lanes

Used to bypass traffic congestion. They can be permanent or part-time. Enforcement would be required to ensure appropriate usage.

- Conventional. With-flow lanes of 3m minimum width allowed with no on-road cycling and no buses travelling in the opposite direction.
- ~~○ Contra flow. Provided on one way streets in the opposite direction of traffic. 4.5m minimum width~~

– ~~Bus-only streets and bus-ways~~

~~Physical segregation of bus routes to limit or eliminate interference with other vehicular traffic by~~

- ~~○ segregation (bus way), or~~
- ~~○ allocation of an entire street to buses (bus only street)~~

– Signal priority and Traffic management/calming

- ~~○ Passive Priority (including fixed timing priority, queue holding, gap generation and virtual bus lanes)~~
- Selected Vehicle Detection (SVD)/Active priority

Sheriffhall Bus Priority Design Options

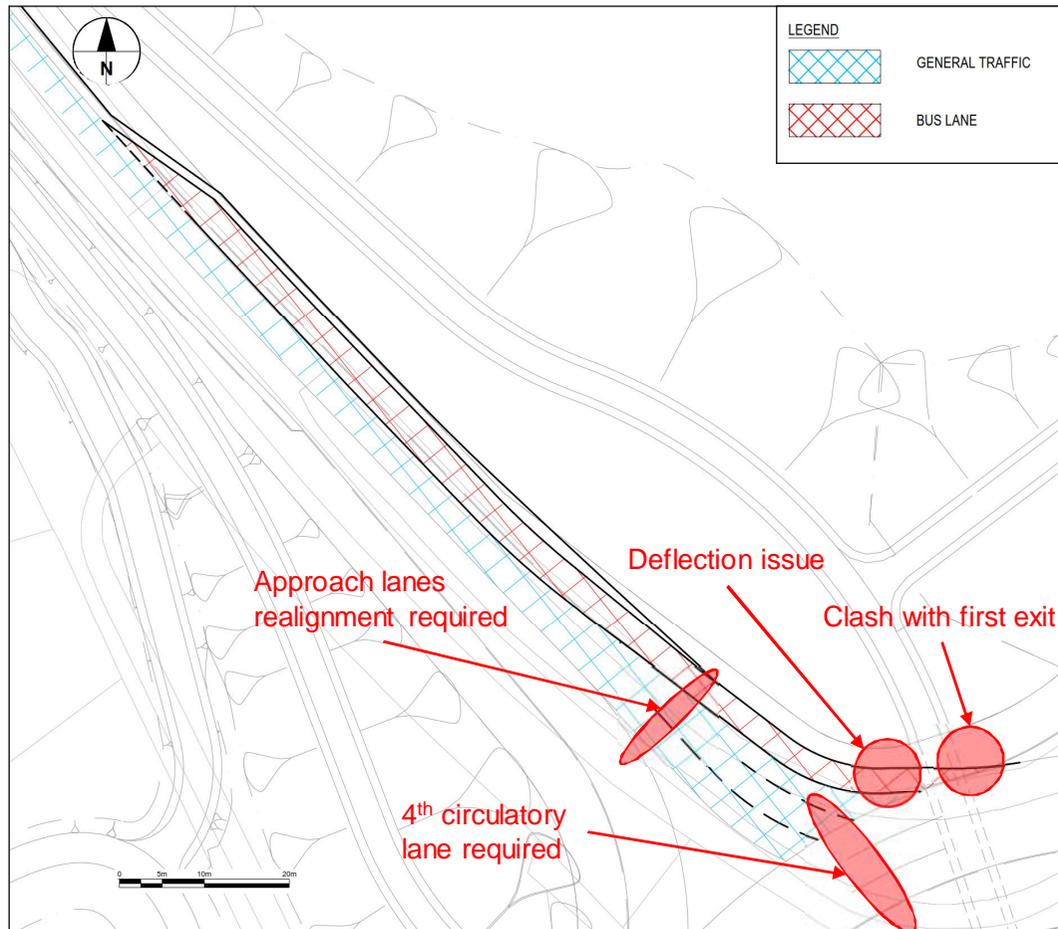
– Bus Lane Options

- Option 1 – Additional approach lane and entry
- Option 2 – Reallocation of carriageway space
- Option 3 – Extension of flares
- Option 4 – Extension of Lane 1

– Signal Priority Options

- Option 5 – Full Signalisation with Passive Priority
- Option 6 – Full Signalisation with Active Priority

Bus Priority Option 1 – Additional approach lane and entry



Description

Provision of an additional approach lane and (4th) entry for exclusive use of buses

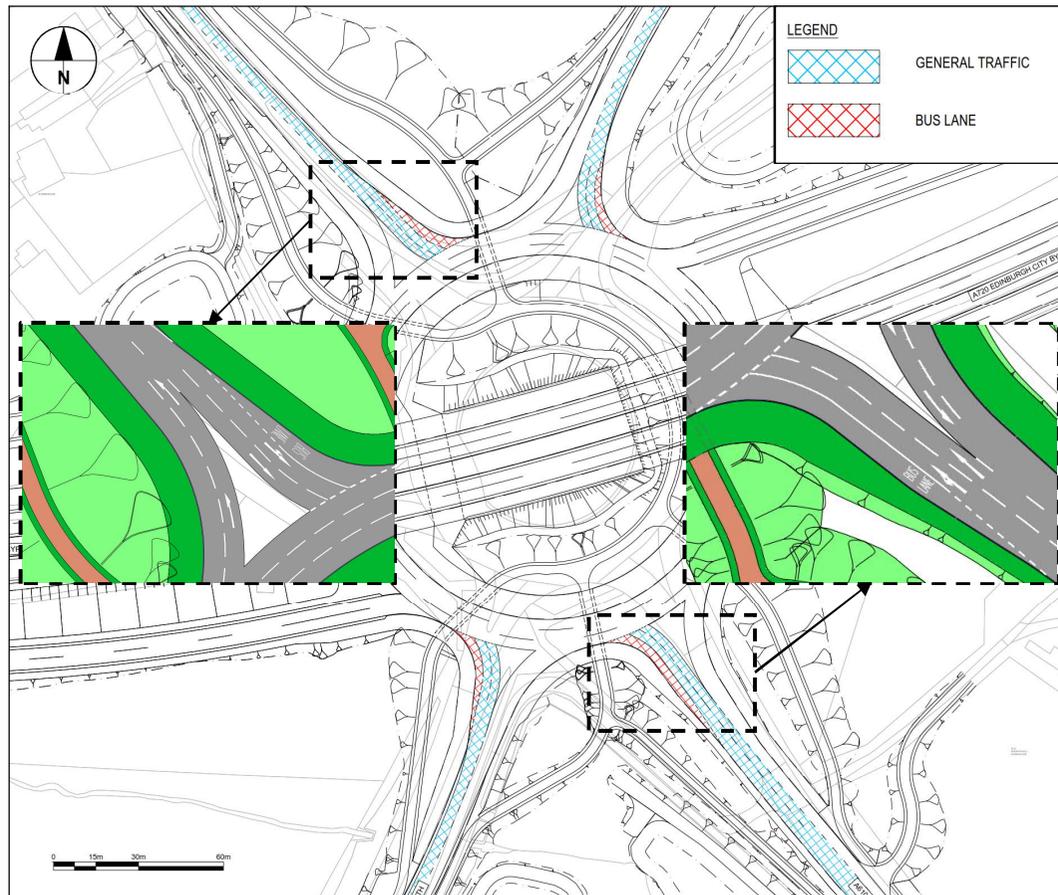
Pros

- Long, dedicated lane for buses
- No impact on capacity for general traffic, compared to Proposed Scheme

Cons

- Requires a full redesign and reassessment of the junction
- Increases environmental impact of the scheme
- Increases scheme footprint and cost
- Requires republication of Environmental Statement, CPO and Road Orders

Bus Priority Option 2 – Reallocation of carriageway space



Description

Reallocation of Lane 1 to buses, with no changes to the Proposed Scheme geometry

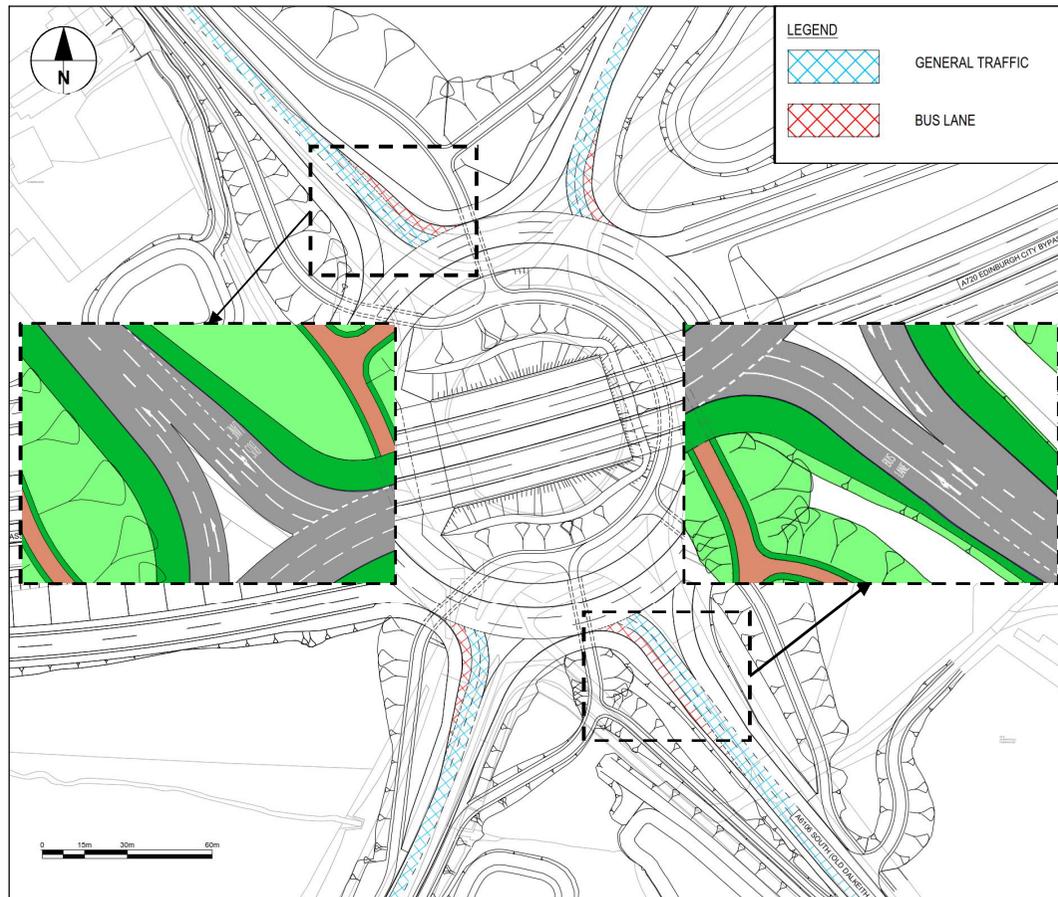
Pros

- Reallocation of carriageway space may help increase public transport attractiveness
- Higher deliverability, compared to other options, due to no changes to the Proposed Scheme

Cons

- Reduces junction capacity for general traffic
- Negligible benefits or even negative impact on bus journey times due to reduced capacity and short length of bus lane
- Conflicting movements between buses and general traffic

Bus Priority Option 3 – Extension of flares



Description

Extension of flares to provide longer entry lanes, and reallocation of Lane 1 to buses

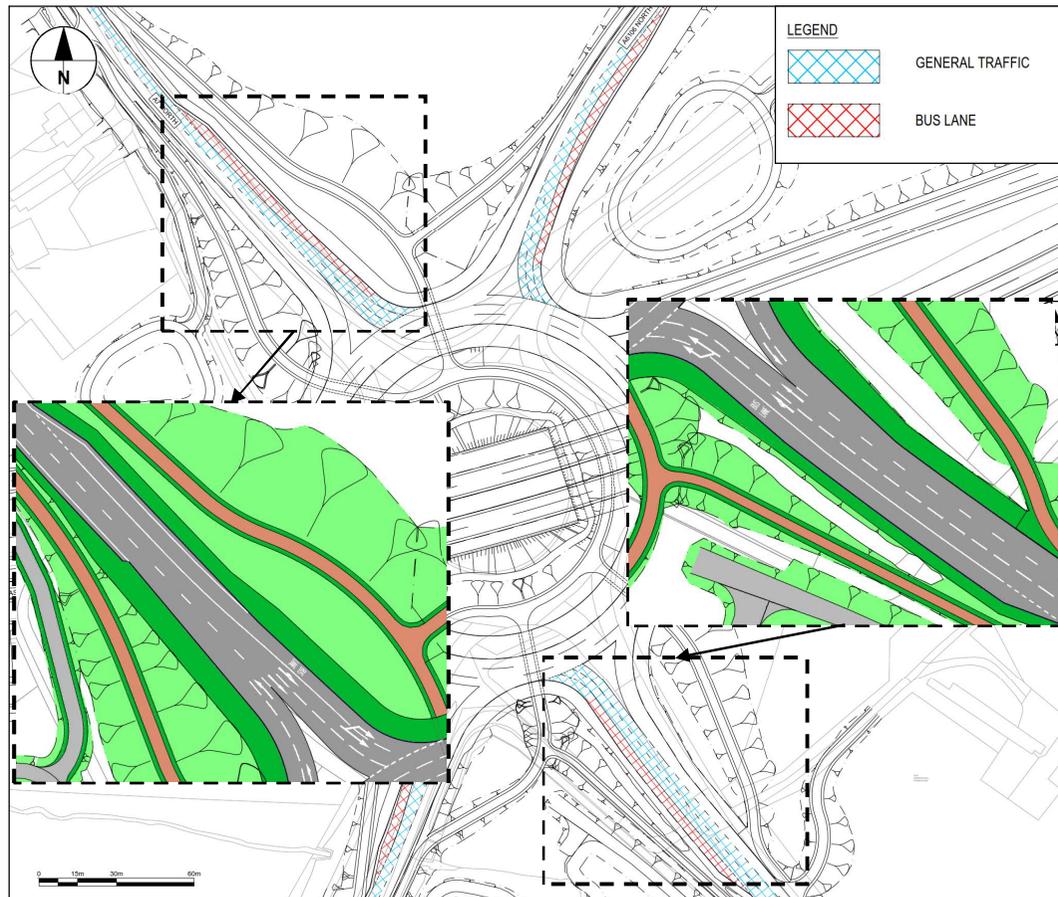
Pros

- Reallocation of carriageway space may help increase public transport attractiveness
- Potentially more effective for bus priority than Option 2, due to the longer bus lane

Cons

- Reduces junction capacity for general traffic
- Benefits on bus journey times likely to be negligible due to reduced capacity and short length of bus lane
- Potential minor impact on landscape, noise and air quality.
- Conflicting movements between buses and general traffic

Bus Priority Option 4 – Extension of Lane 1



Description

Long extension of Lane 1 to be used as bus lane

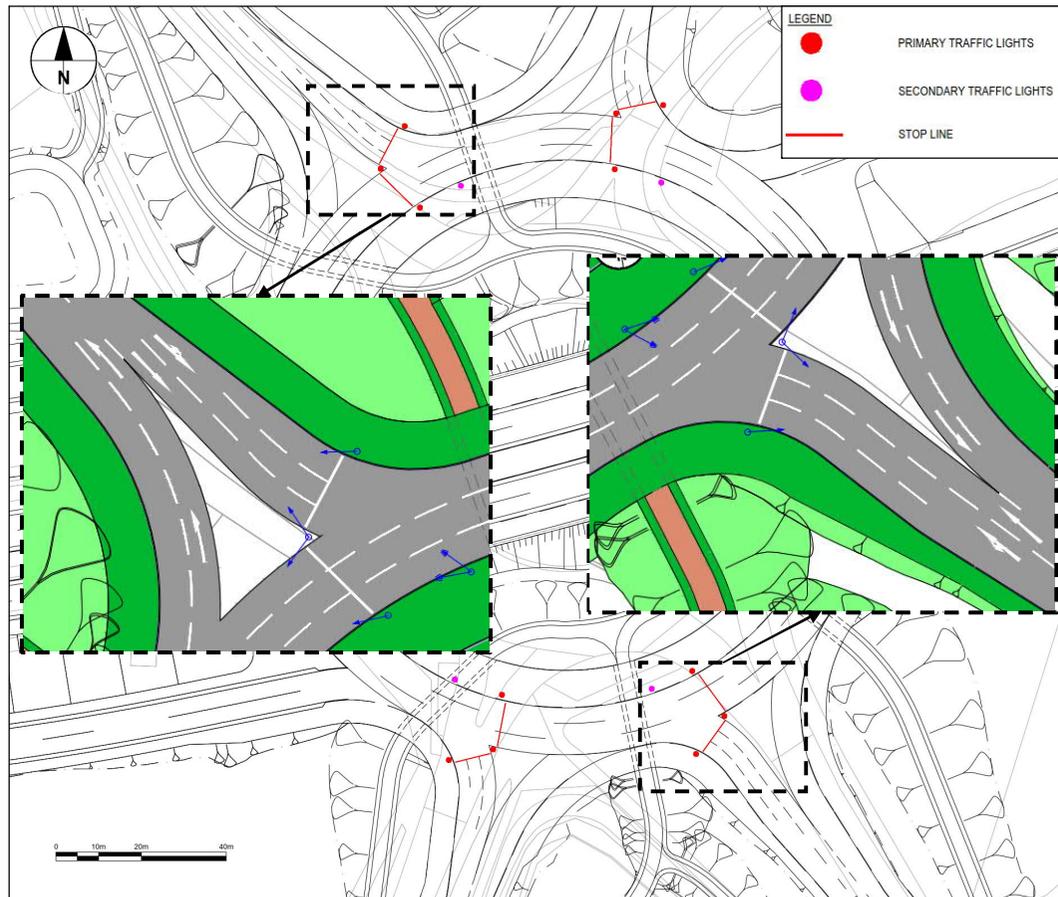
Pros

- Provision of dedicated infrastructure may help increase public transport attractiveness
- A long bus lane helps buses overcome queues
- The final section of bus lane can be reallocated to all traffic to minimise impact on junction capacity

Cons

- Potential minor impact on landscape, noise and air quality.
- Conflicting movements between buses and general traffic likely to still occur if no signalisation or bus advance area is provided

Bus Priority Option 5 – Full signalisation with passive priority



Description

Full signalisation of Sheriffhall Roundabout with fixed signal phasing based on bus route/services

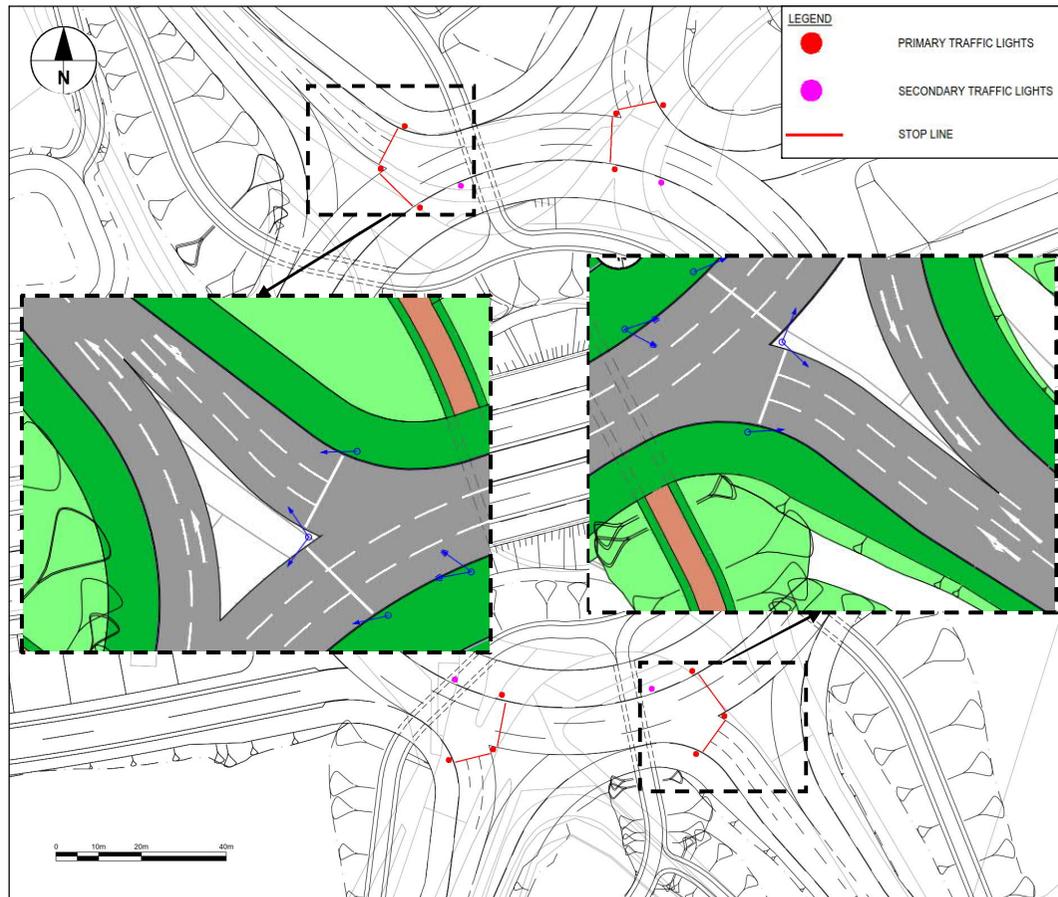
Pros

- Helps improve bus journey times
- High deliverability due to no changes to the Proposed Scheme geometry

Cons

- Does not provide dynamic/flexible solutions for delayed services
- Requires redesign of signal phasing if services are amended/cancelled/added
- Needs to be part of a wider bus priority strategy to ensure efficiency

Bus Priority Option 6 – Full signalisation with active priority



Description

Full signalisation of Sheriffhall Roundabout with dynamic signal phasing to prioritise delayed bus services

Pros

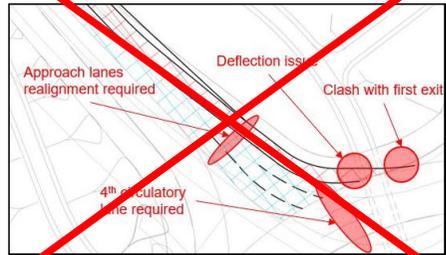
- More effective for bus priority than Option 5, due to dynamic and targeted adjustments to signal phases
- High deliverability due to no changes to the Proposed Scheme geometry

Cons

- Requires installation of specific equipment on buses
- Needs to be part of a wider bus priority strategy to ensure efficiency

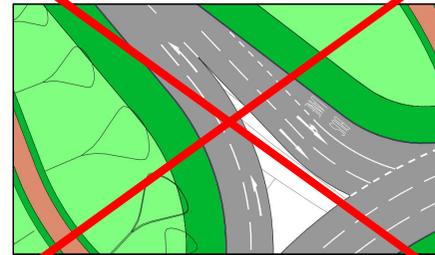
Bus Priority Options – Assessment Summary

~~Option 1 – Additional approach lane and entry~~



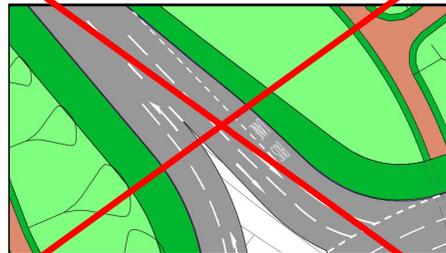
Discounted due to severe impact on the scheme and deliverability

~~Option 2 – Reallocation of carriageway space~~



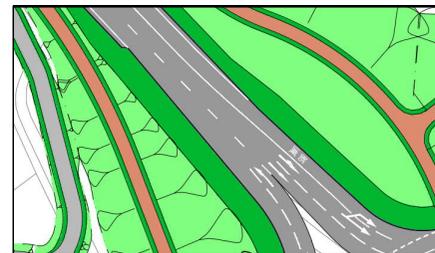
Discounted due to negative impact on general traffic and, potentially, on bus journey times

~~Option 3 – Extension of flares~~

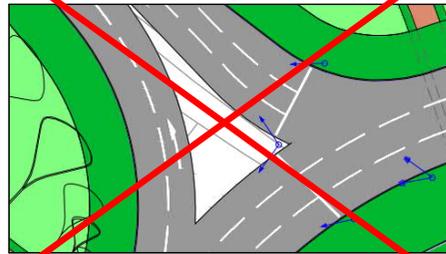


Discounted due to negative impact on general traffic and negligible benefits to bus journey times

Option 4 – Extension of Lane 1

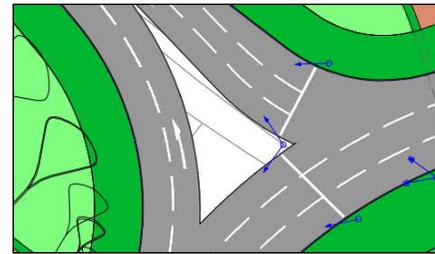


~~Option 5 – Full signalisation with passive priority~~

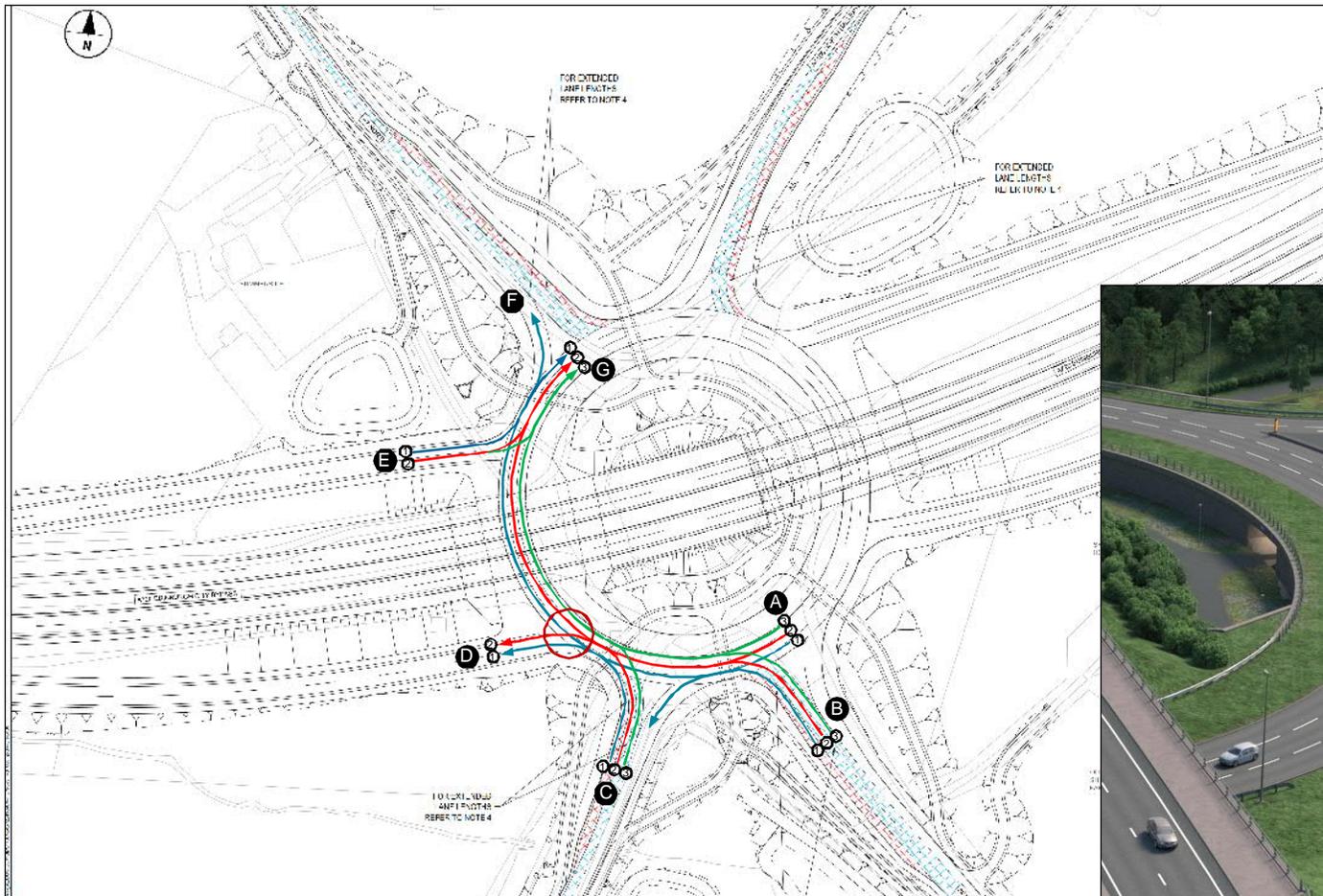


Discounted due to limited benefits to bus journey times and lack of flexibility, when compared to Option 6

Option 6 – Full signalisation with active priority



Bus Priority Option 4 – Initial Operational Considerations

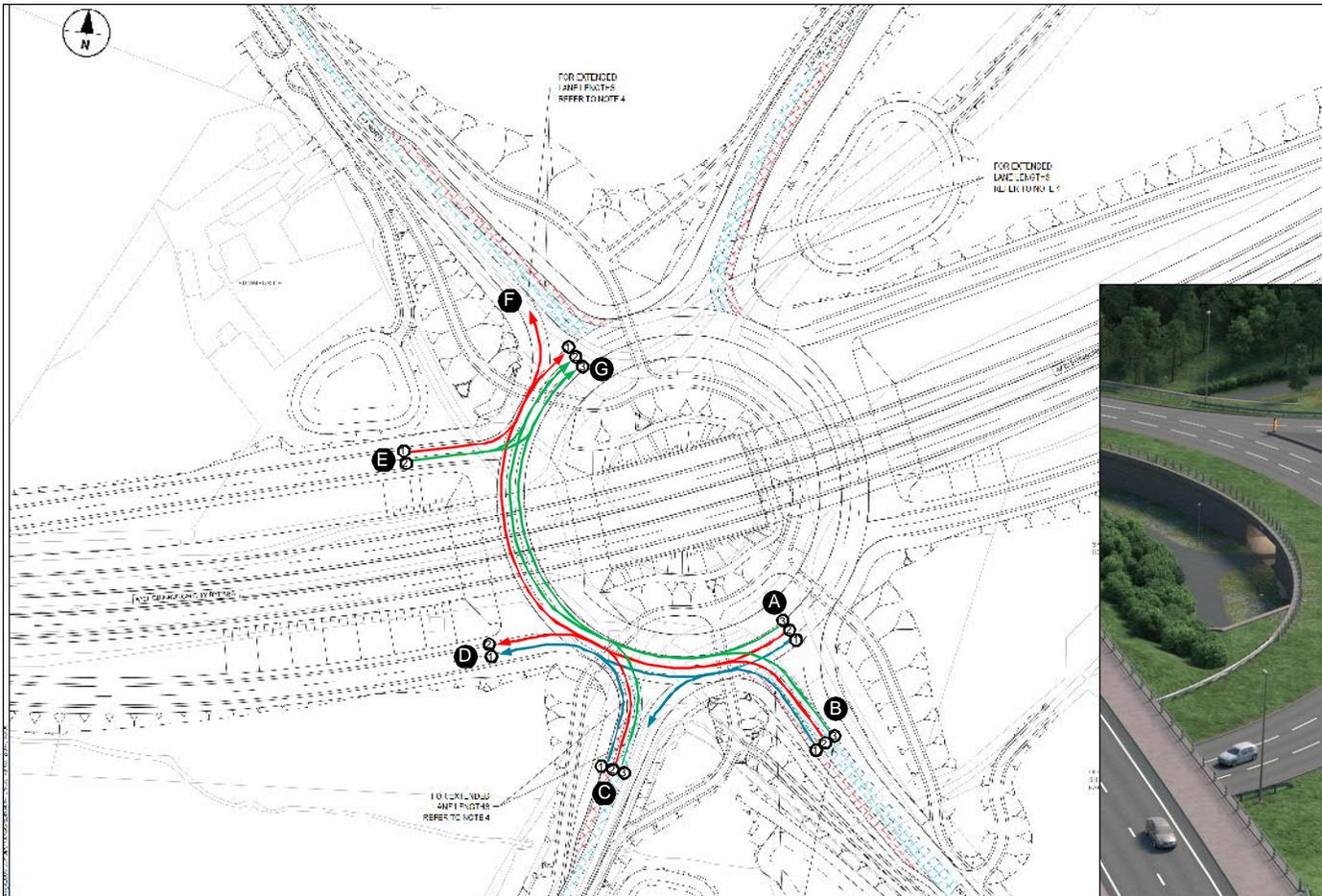


Proposed Scheme Conflicting Movements

- Conflicting approach, circulatory and exit lanes



Bus Priority Option 4 – Initial Operational Considerations

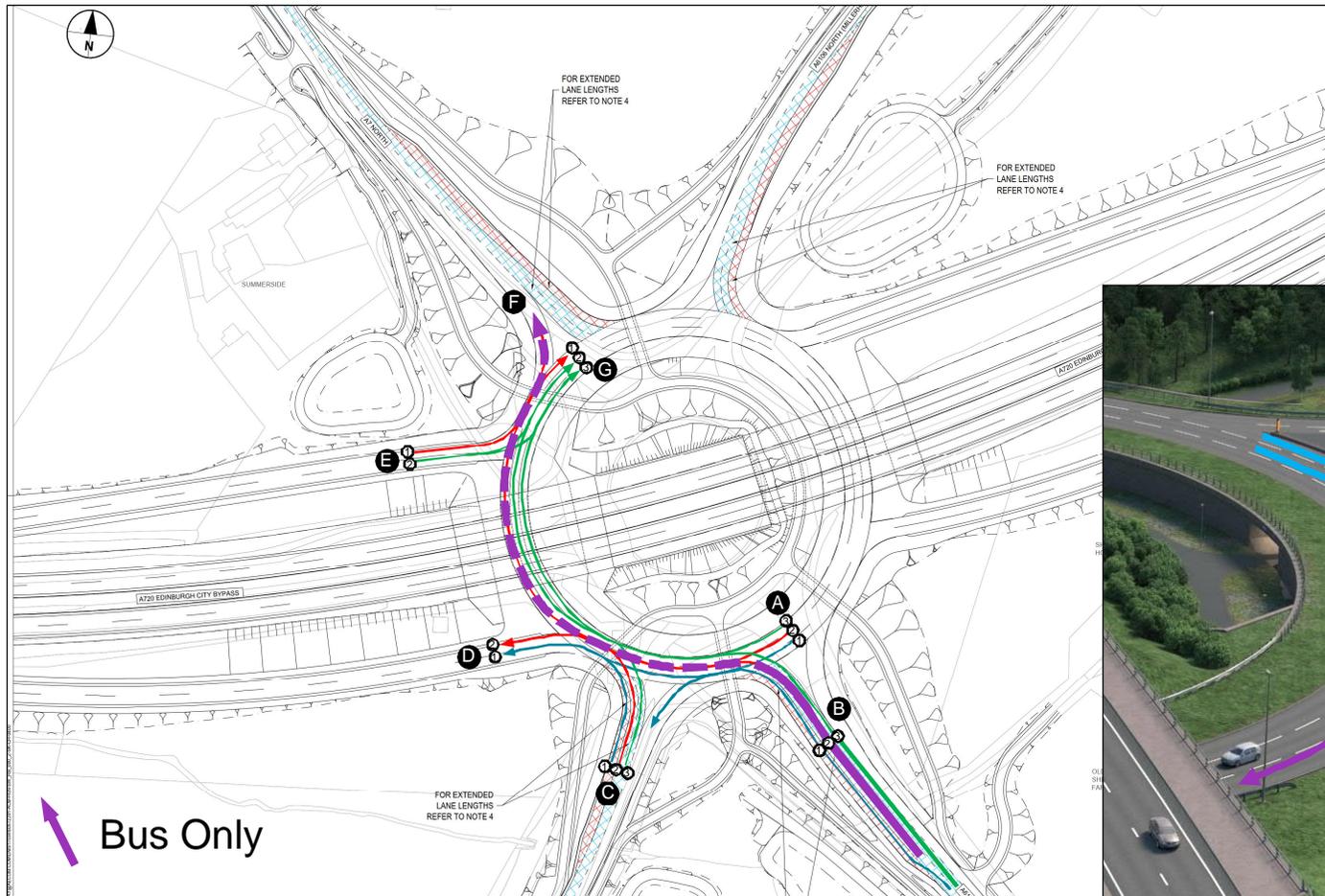


Proposed Scheme Spiral Lane Markings

- No conflicting movements

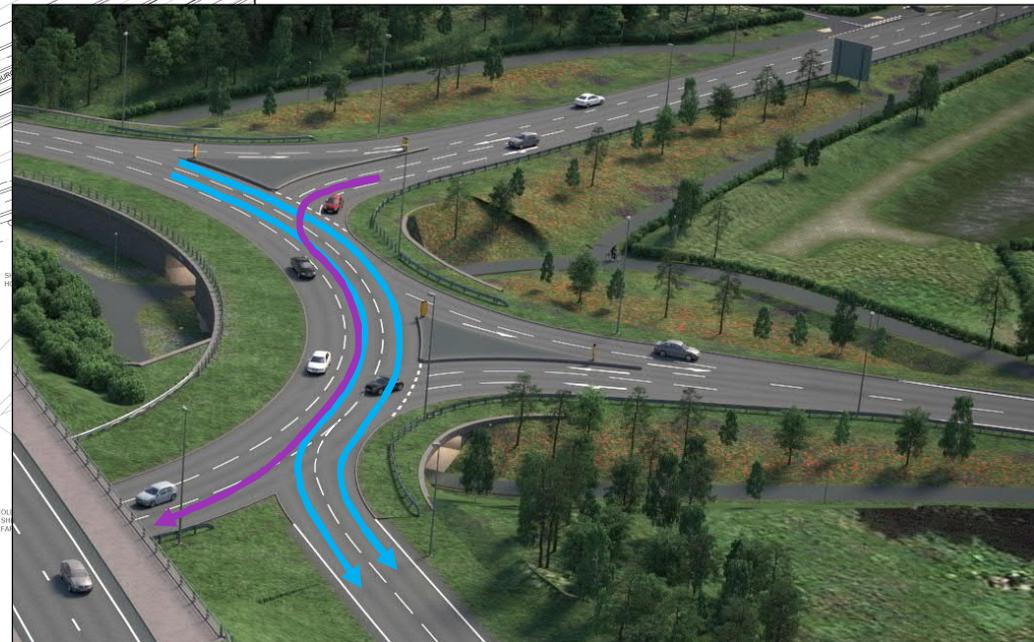


Bus Priority Option 4 – Initial Operational Considerations



Proposed Scheme Spiral Lane Markings

- Bus Only Lane 2 Approach
- No Conflicts

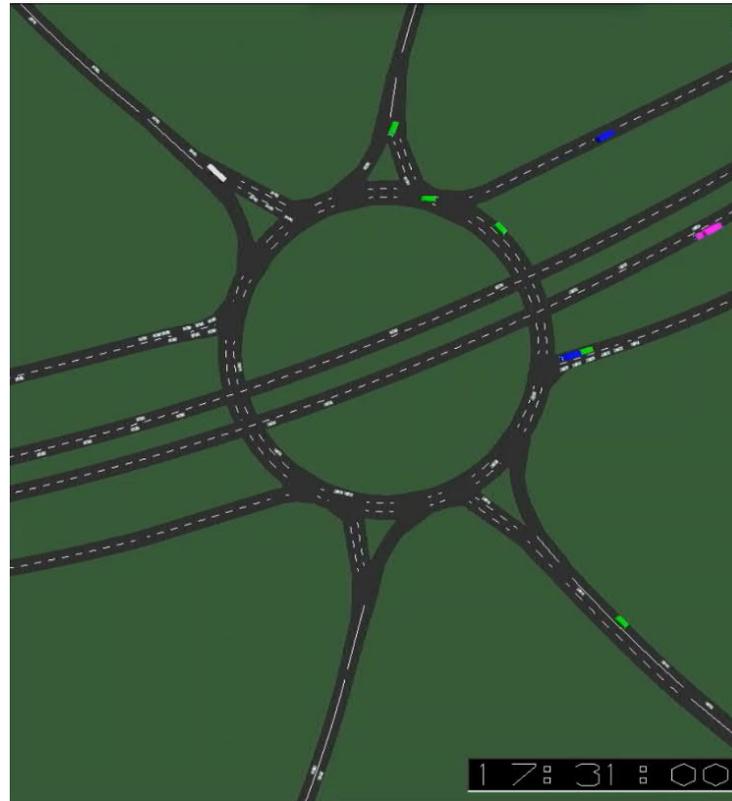
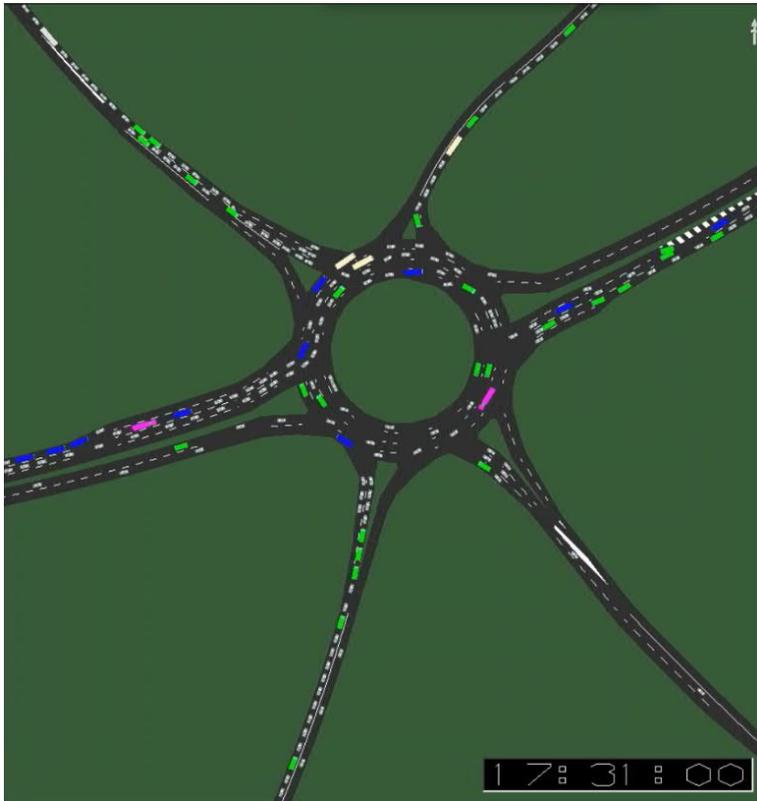


Bus Priority Option 6 – Initial Operational Considerations



- The traffic assessment undertaken for the Proposed Scheme indicates that traffic signals are not required on the local road approaches to the roundabout based on predicted levels of demand.
- The provision of traffic signals where they are not needed, and/or the dynamic alteration of signal phasing to prioritise delayed bus services, might worsen the operational conditions of the roundabout.
- To maximise its effectiveness and efficiency, Option 6 would need to be part of a wider bus priority strategy.
- The Proposed Scheme has been futureproofed with the provision of ducting throughout the junction. This would facilitate the implementation of Option 6 at a later date if deemed necessary and beneficial in the future.

Bus Priority Option Review – Summary



The Proposed Scheme is expected to deliver significant benefits to local traffic (including bus services) due to the improved traffic conditions on local roads resulting from the separation between strategic and local traffic.

Bus Priority Option Review – Summary

- Several bus priority options (1, 2, 3 and 5) have been discounted due to negligible benefits to buses, impacts on general traffic and/or deliverability issues.
- Options 4 and 6 are potentially beneficial to bus journey times and reliability, but benefits are considered to be marginal when compared to the benefits the Proposed Scheme already offers. These bus priority measures, especially if considered in isolation, also introduce operational challenges or conflicts for general traffic.
- The Proposed Scheme has been futureproofed with the provision of ducting throughout the junction. This would facilitate the implementation of Option 6 at a later date if deemed necessary and beneficial in future, and as part of a longer term and wider strategy.

Traffic Modelling associated with the A720 Sheriffhall Roundabout Scheme

A720 Sheriffhall Roundabout

ESES City Region Leaders' Group
Traffic Modelling for A720 Sheriffhall Roundabout Scheme
4 August 2021

Russell Bissland
Technical Director



Agenda

1. Baseline Traffic Conditions
2. Traffic Modelling and Computer Simulations
3. The Proposed Scheme
4. Traffic Forecasting and Future Demand at Sheriffhall Roundabout
5. A720 Operating Conditions
6. Public Transport - Bus Routes and Journey Times
7. Active Travel Benefits
8. Summary and Conclusions
9. Next Steps and Programme

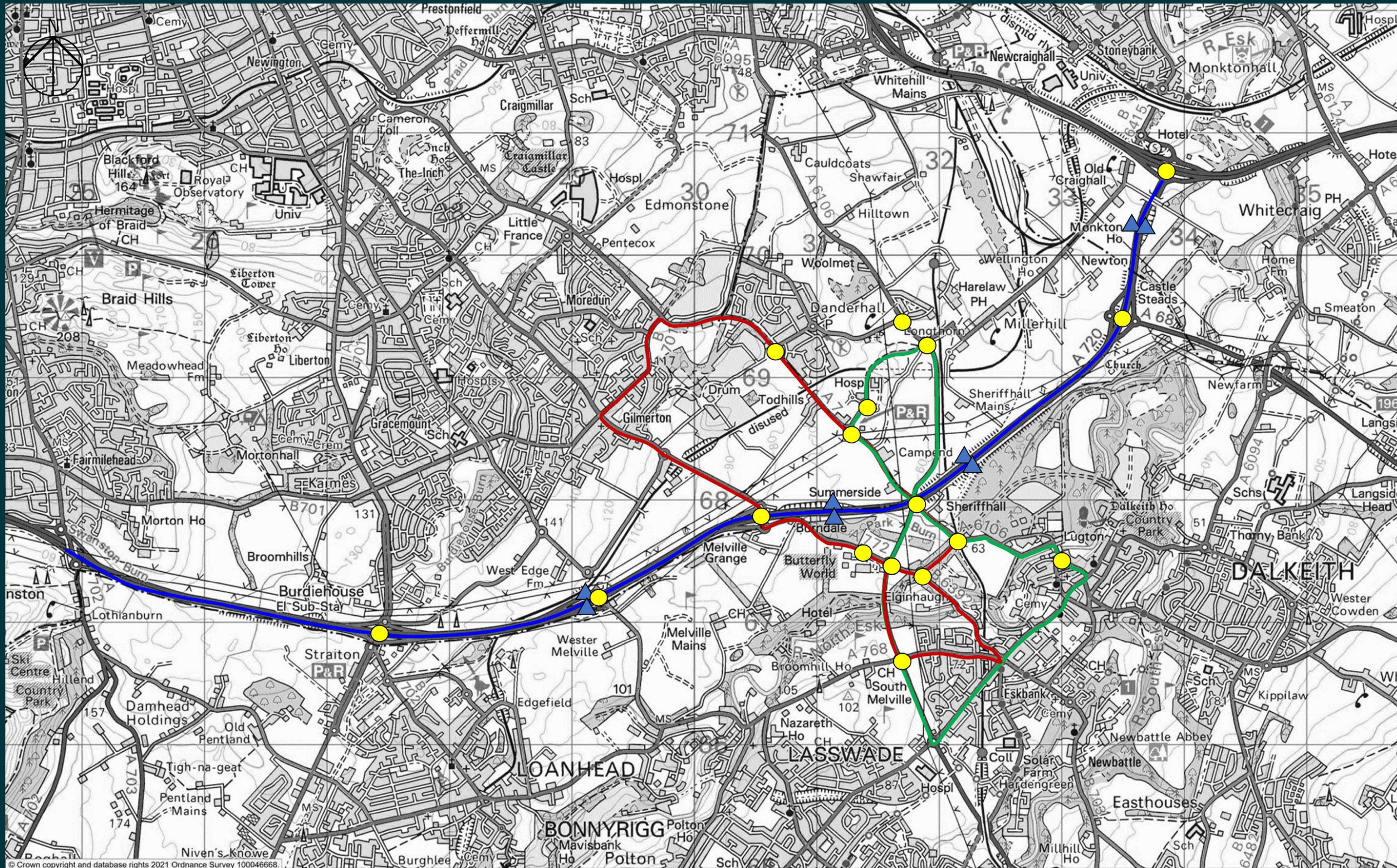
Baseline Traffic Conditions



A720 looking west

Baseline Traffic Conditions

Primary Traffic Survey Locations



Primary Traffic Survey Locations

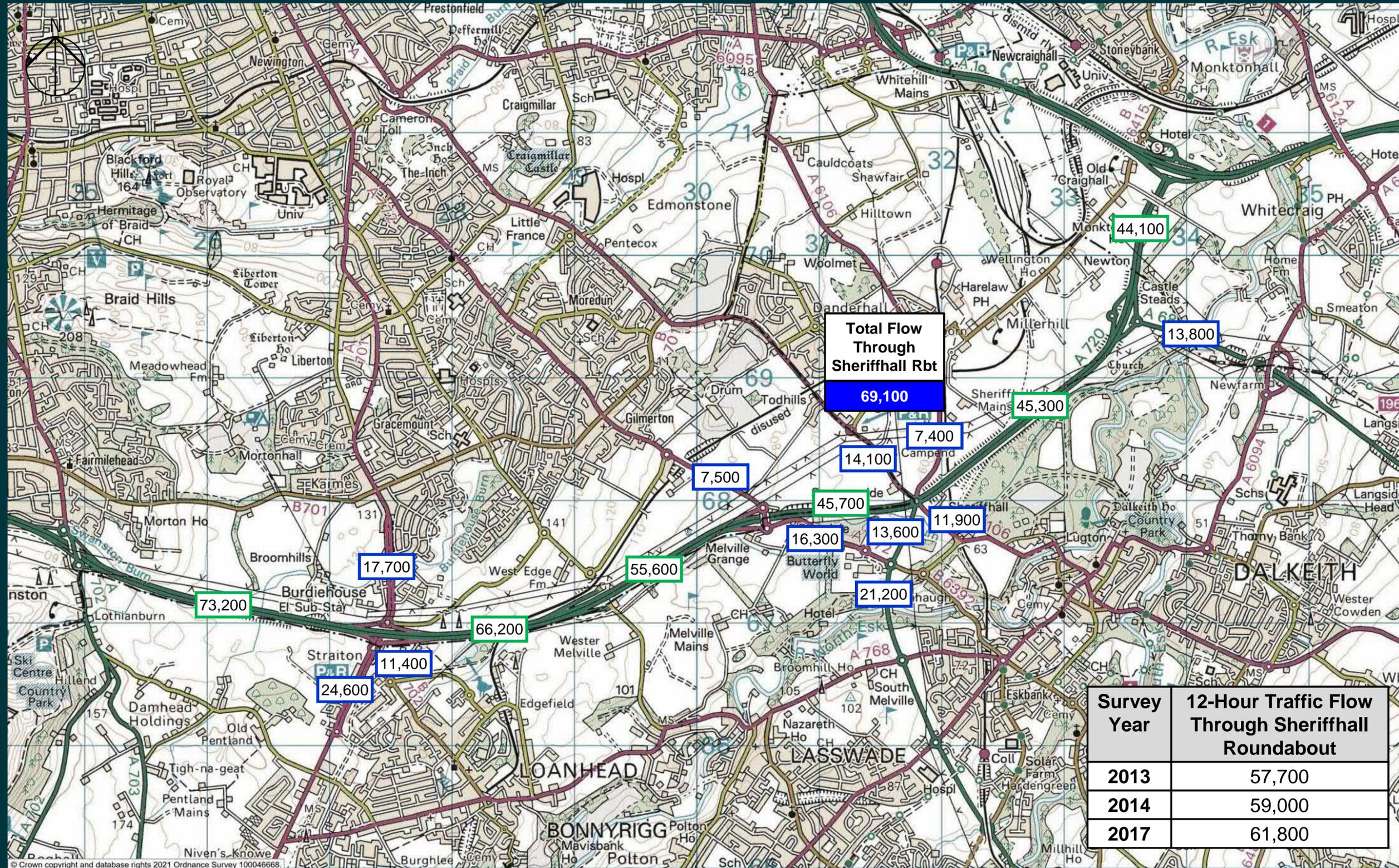
- May 2017
- Strategic and Local Network
- Manual Classified Counts
 - 6 MCC A720 corridor
 - 5 MCC north of A720
 - 6 MCC south of A720
- Permanent ATCs on A720
- Journey Time Surveys
 - JTS on A720
 - JTS on A7
 - JTS on A6106

Notes:

- 17 No. Manual Classified Count
- ▲ 8 No. Permanent ATCs
- 3 No. Journey Time Survey

Baseline Traffic Conditions

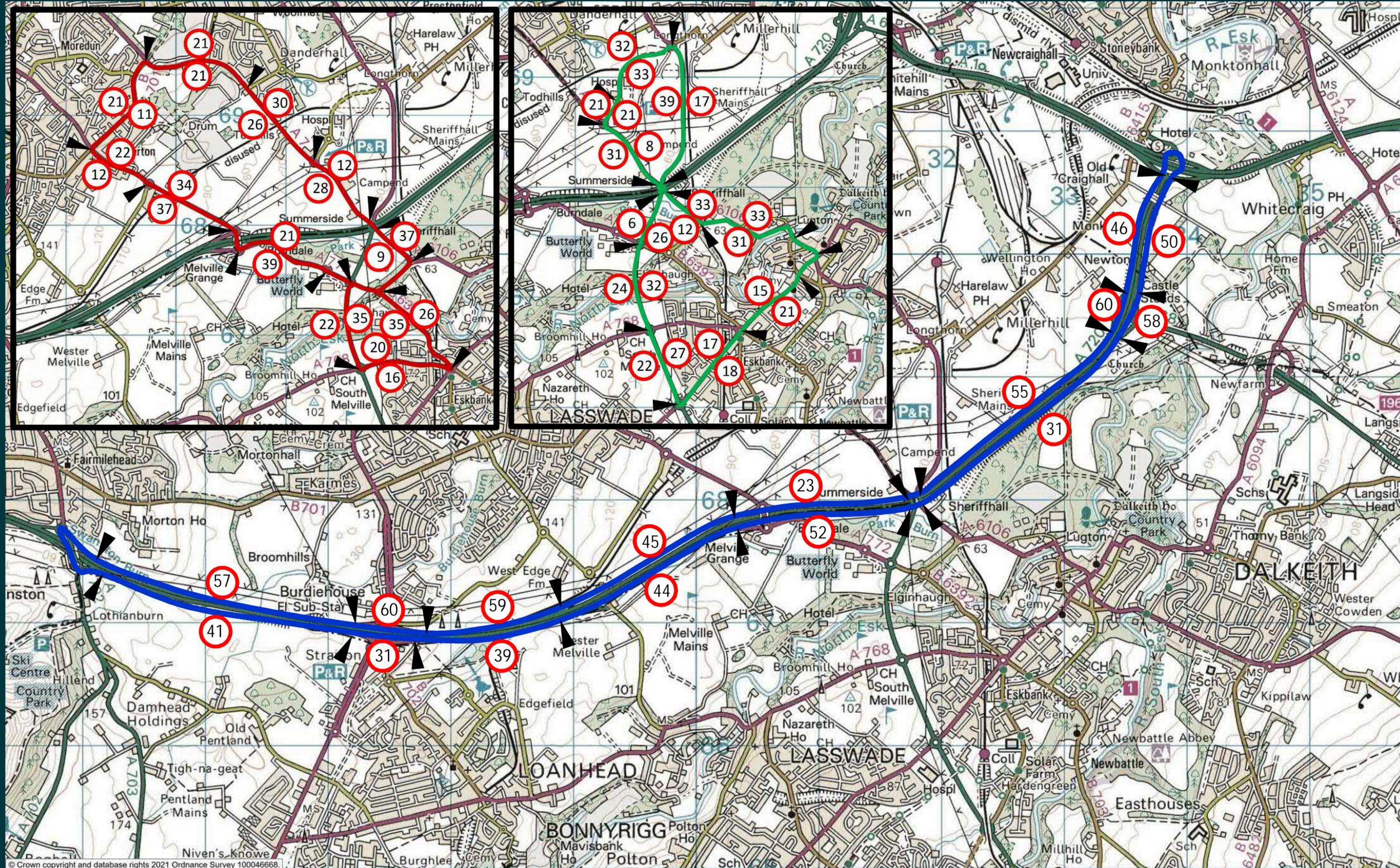
Manual Classified Counts



Manual Classified Counts

- May 2017
- Traffic Flows and Turning Movements
- 14-Hour Traffic Flows
A720 44,100 to 73,200 vpd
- Annual increase in traffic flows through Sheriffhall Roundabout.
- Approx. 75% of traffic on the A720 at Sheriffhall Roundabout passes straight through the junction.
- In total, this A720 through-traffic accounts for 48% of all traffic at Sheriffhall Roundabout.

Baseline Traffic Conditions Journey Time Surveys

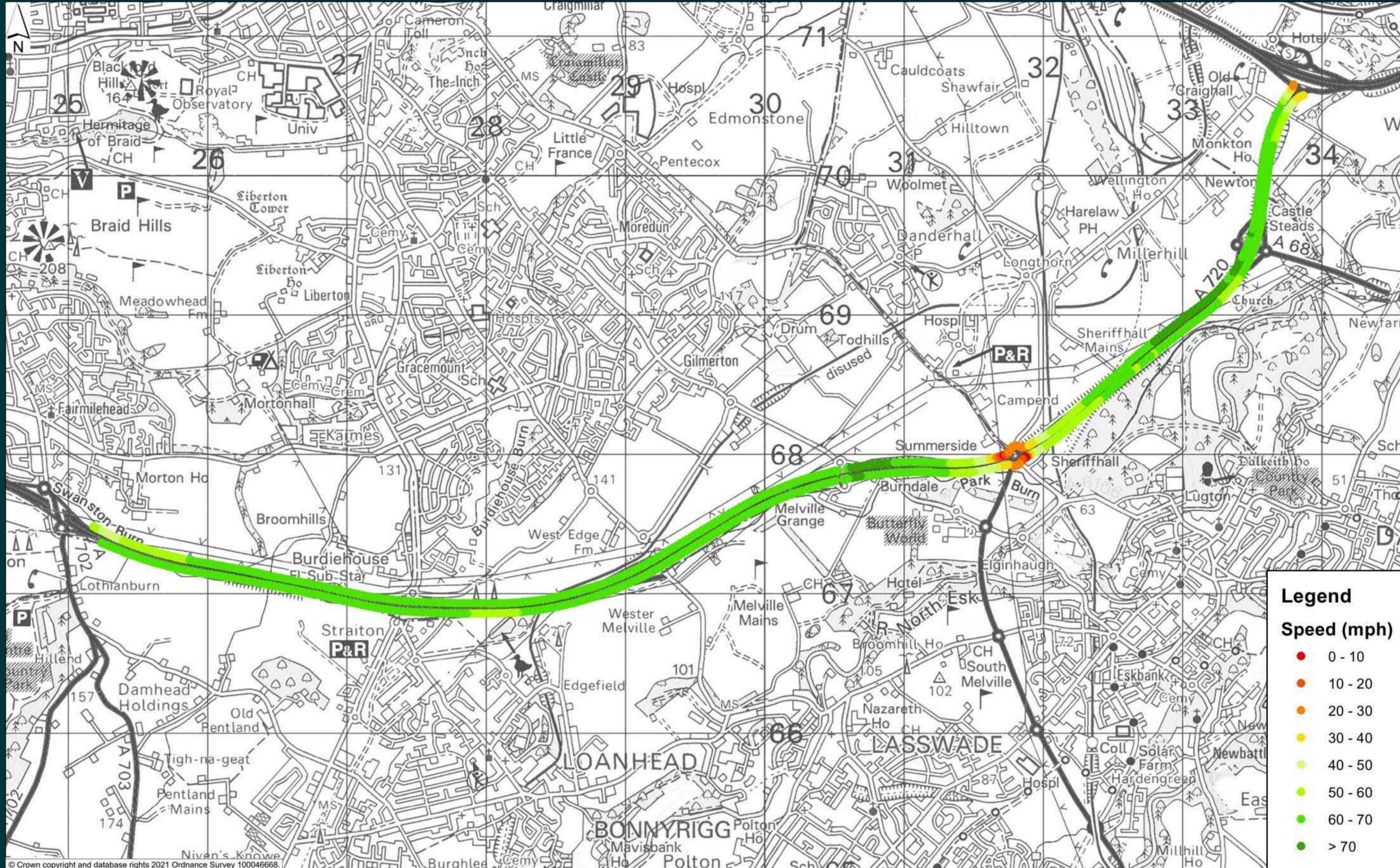


Journey Time Surveys

- May 2017
- Define operating Conditions across the Strategic and Local Network
- 3 JTS Routes
- Average Daily Speeds (mph)
- Multiple runs over multiple days
- AM Period 06.00-1000
- IP Period 11.00-15.00
- PM Period 16.00-19.00
- Results indicate congestion delays on all approaches to Sheriffhall Rbt.

Baseline Traffic Conditions

Journey Time Surveys – Speed Plots

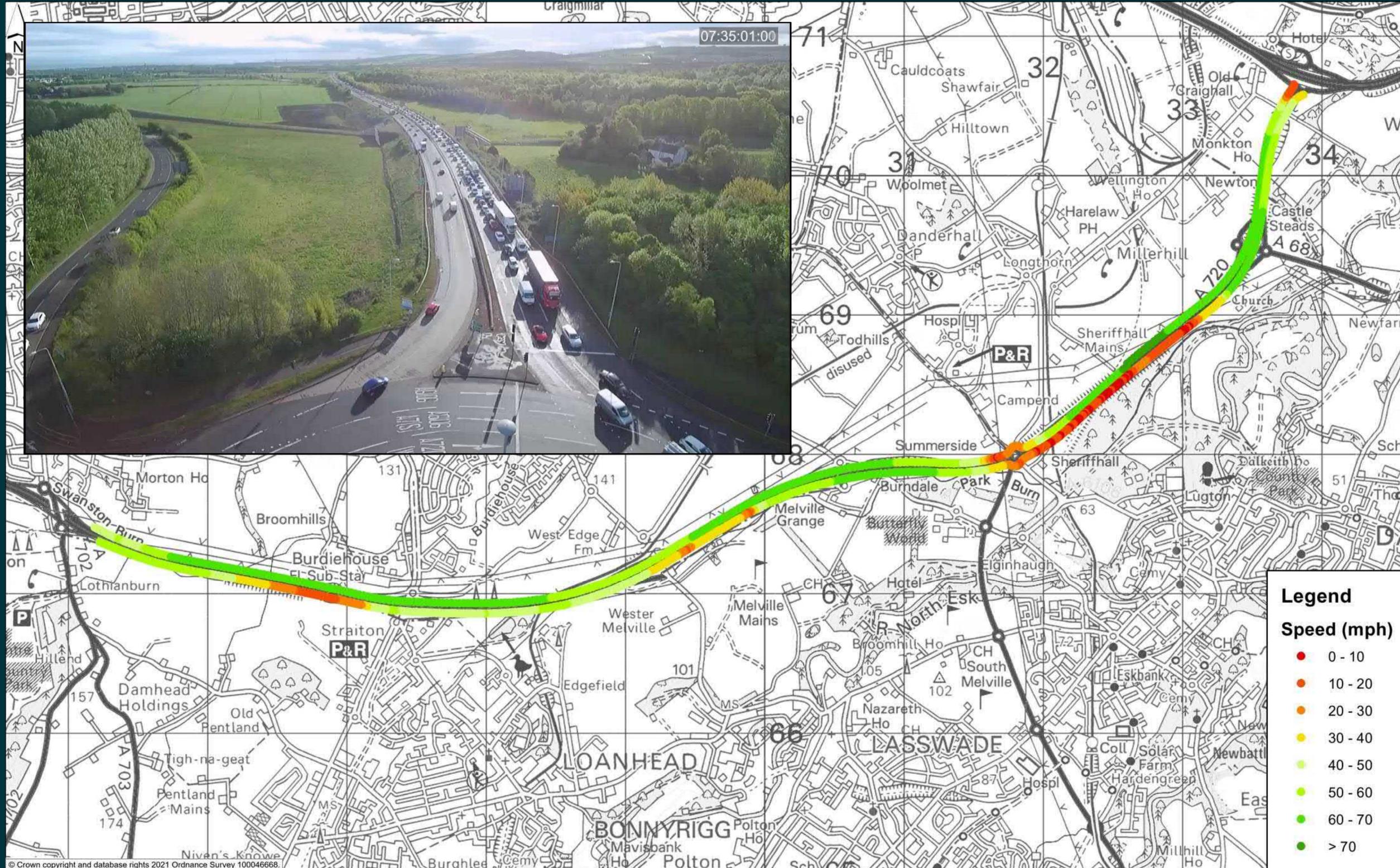


Journey Time Surveys

- May 2017
- GPS Speeds Plots
- Interpeak – 12:00 hours
- Red indicates 0-10 mph
- Green indicates 60+ mph
- Delays on immediate approach to Sheriffhall Rbt

Baseline Traffic Conditions

Journey Time Surveys – Speed Plots

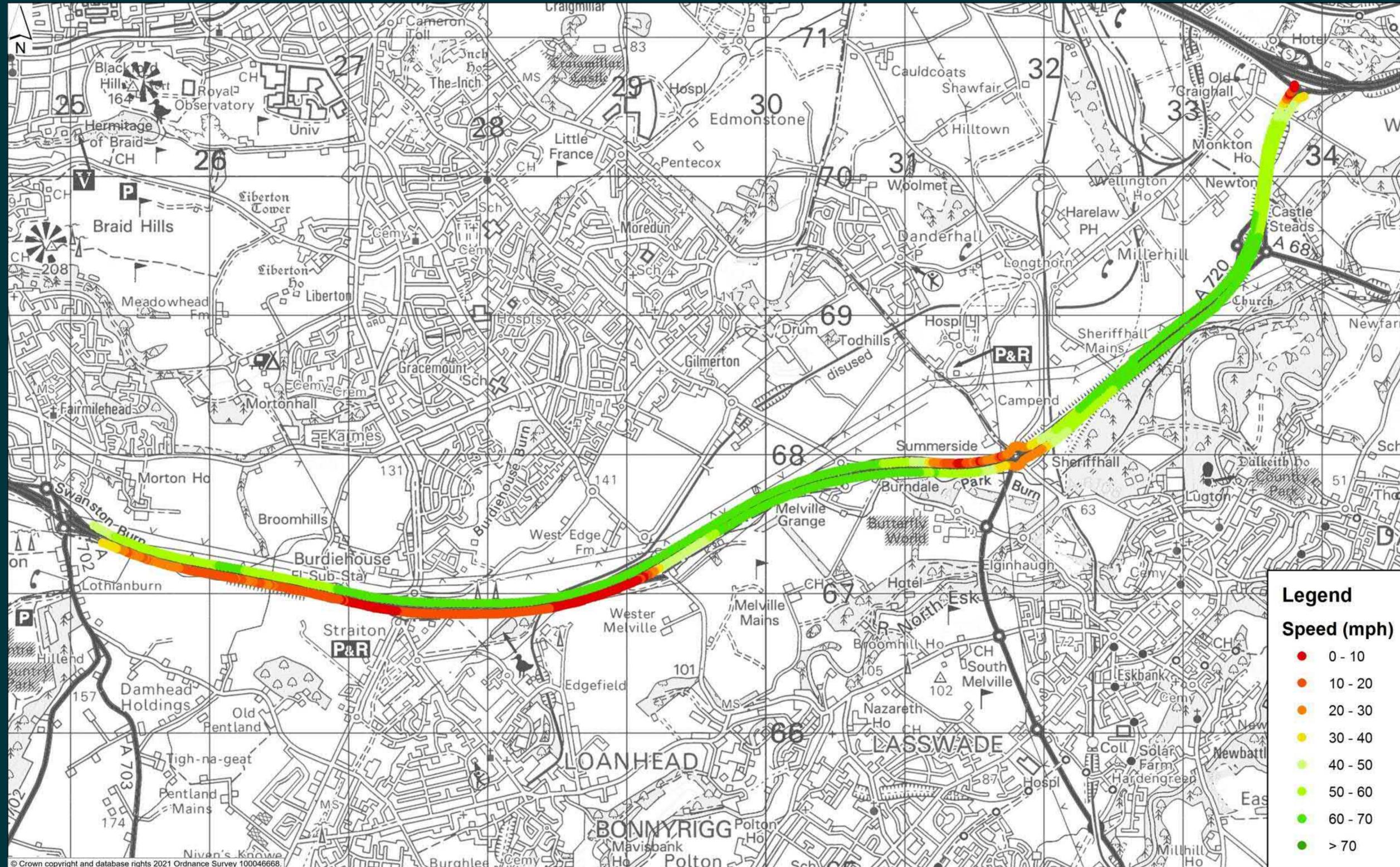


Journey Time Surveys

- May 2017
- GPS Speeds Plots
- AM Peak – 07:00
- Westbound Queues
- Delays over 2km approach to Sheriffhall Rbt
- Westbound Downstream Congestion due to Merging Traffic
- Straiton

Baseline Traffic Conditions

Journey Time Surveys – Speed Plots



Journey Time Surveys

- May 2017
- GPS Speeds Plots
- AM Peak – 08:00
- Westbound Queues
- Sheriffhall Rbt
- Westbound Downstream Congestion due to Merging Traffic
- Lothianburn, Straiton and Lasswade

Baseline Traffic Conditions

Journey Time Surveys – Speed Plots



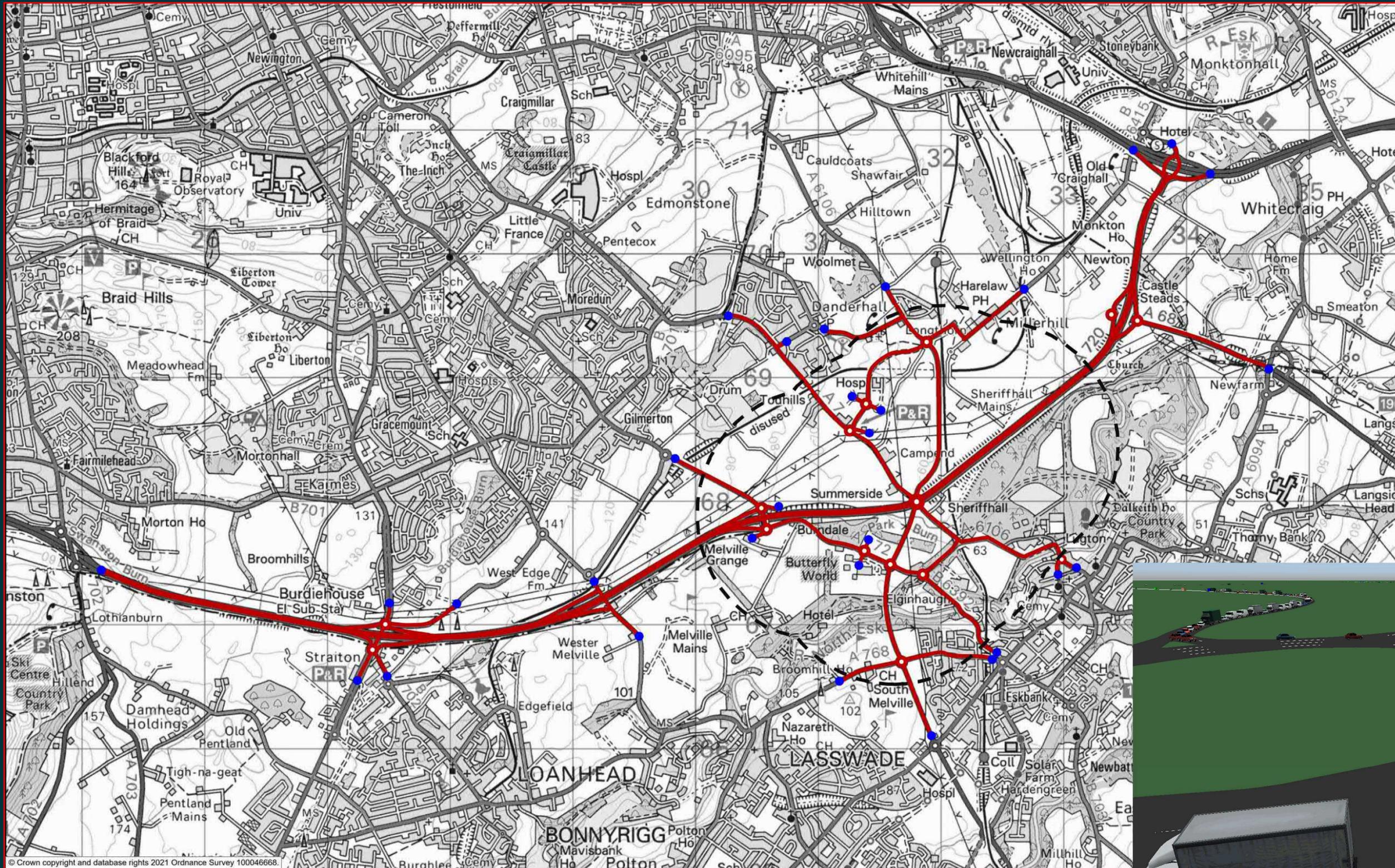
Journey Time Surveys

- May 2017
- GPS Speeds Plots
- PM Peak – 17:30
- Eastbound Queues
- Delays over 4km approach to Sheriffhall Rbt
- Westbound Downstream Congestion due to Merging Traffic
- Straiton & Lasswade

Traffic Modelling and Computer Simulations

Traffic Modelling and Computer Simulations

Paramics Base Network



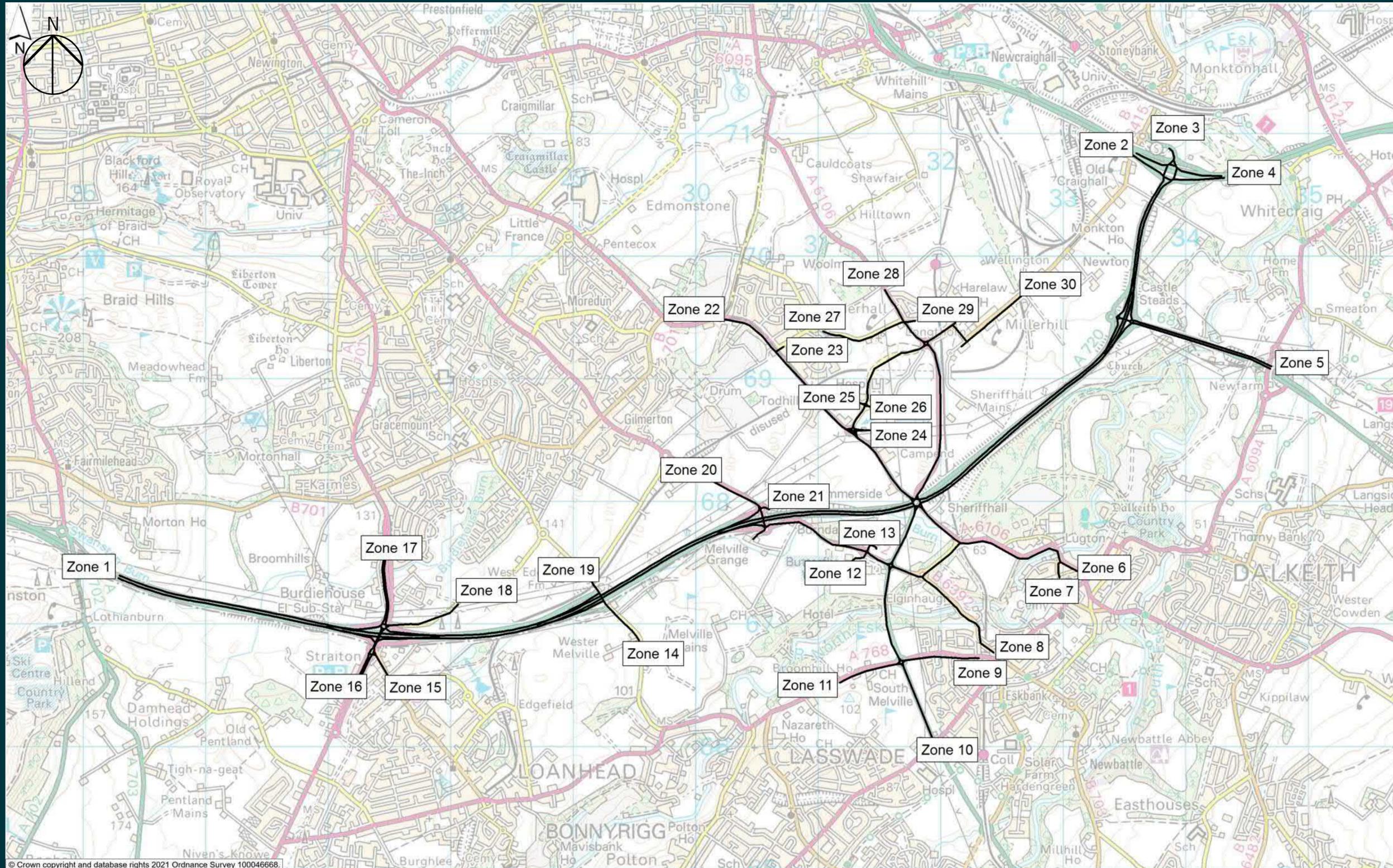
Paramics Simulation Model

- Base Model
- Lothianburn to Old Craighall
- To assess the effects of the proposed Scheme, the simulation network extends to approx. 1km from Sheriffhall Rbt on the local road network and includes the 10 km section of the A720 to model the effects on congestion along the strategic corridor.



Traffic Modelling and Computer Simulations

Paramics Base Network



Paramics Base Model

- Zoning System
- 24 hour Simulation period
- Survey Data 06:00 to 20:00
- Overnight modelling
- Weekend modelling
- Light and Heavy Vehicles
- Trip Matrix 156,000 vehicle movements in 14-hours
- Multiple simulations are required to model effects of random variations.

Traffic Modelling and Computer Simulations

SEStran Regional Model (SRM12)



Growth from 2017 (Observed) Year to 2024 Opening Year

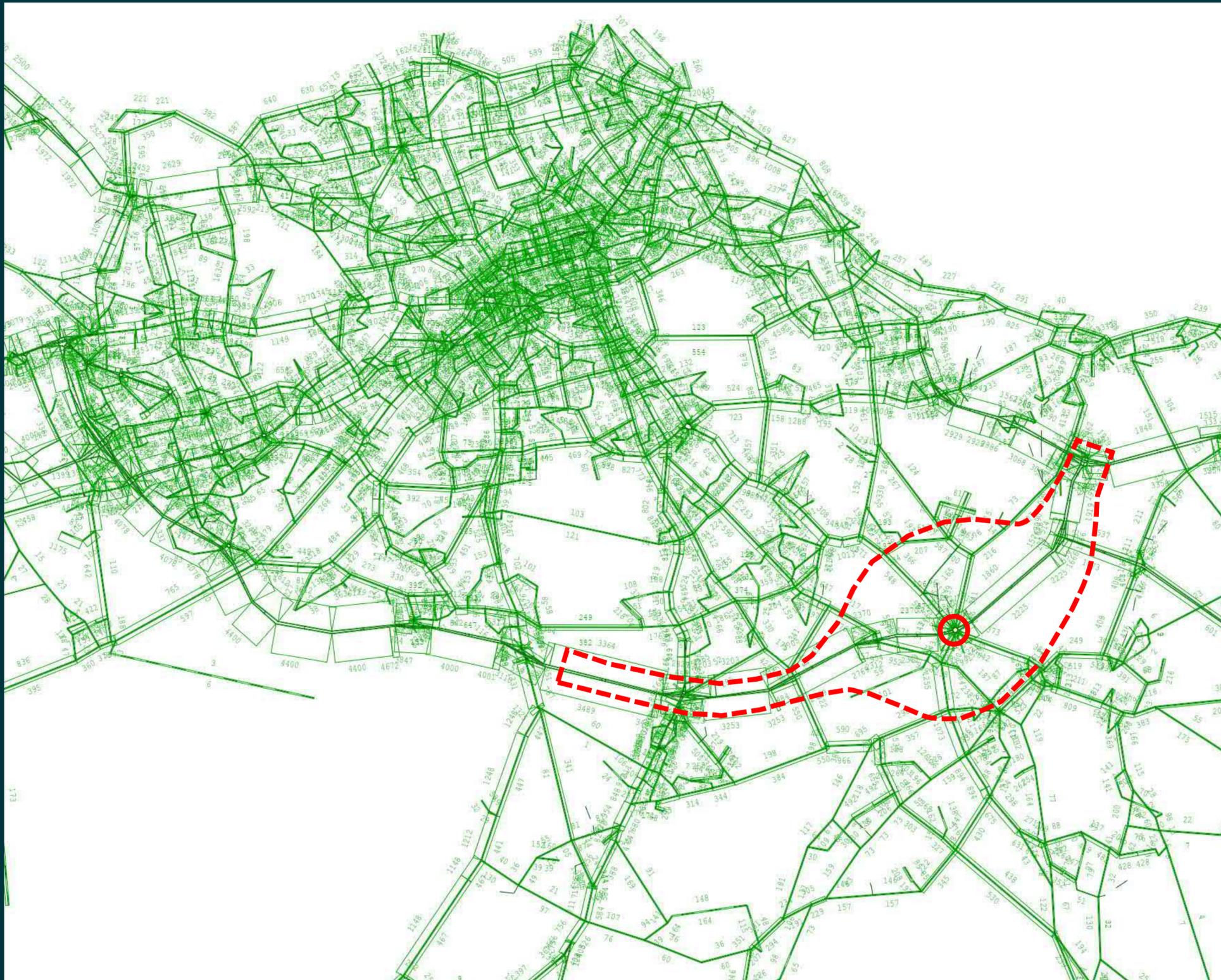
The SEStran Regional Model (SRM12) was used to derive an estimate of future growth based on the traffic related effects of proposed changes in land use over both the local and the wider regional area.

Growth Beyond 2024 Opening Year to 2039 Design Year

To assess the effects of traffic growth beyond the 2024 opening year, growth rates were extracted from TMfS14.

Traffic Modelling and Computer Simulations

SEStran Regional Model (SRM12) – Edinburgh Area



The traffic data from SRM12 consists of:

- AM Peak Hour,
- Inter-Peak Hour, and
- PM-Peak Hour traffic

Data was extracted from the SRM12 models for

- 2012 Baseline Year and
- 2024 Reference Case Year
- 2024 Reference Case Year with Proposed Scheme

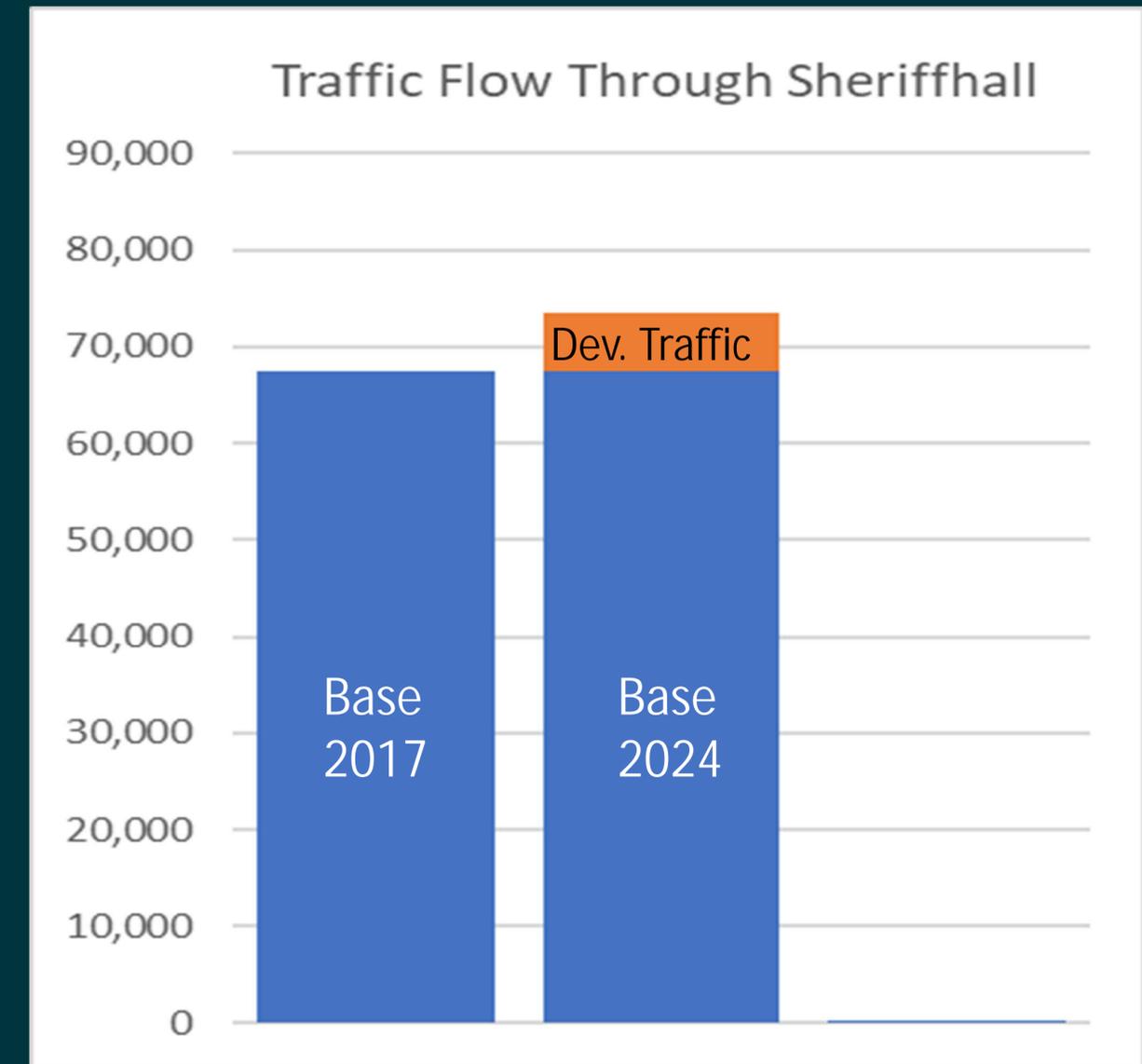
Traffic Forecasting and Future Demand at Sheriffhall Roundabout

Base 2017 Model

- Created from May 2017 observed traffic flows
- 14-Hour Weekday Period, Light Vehicles and Heavy Vehicles

Base 2024 Model: Traffic from SRM12

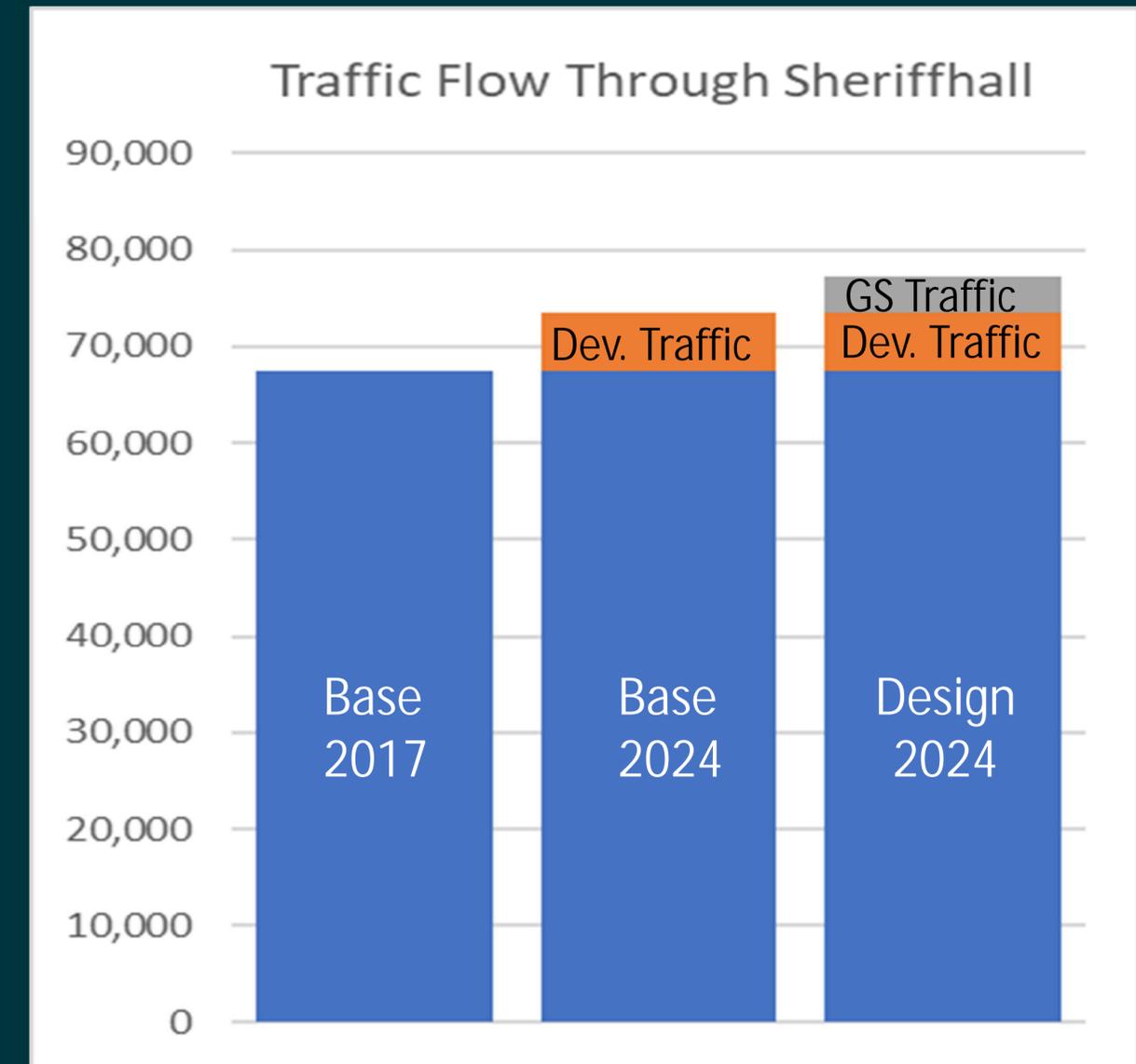
- SRM12 includes growth over a 12-Year (2012 to 2024) from development traffic
- Base 2024 model is based on Base 2017 Model + growth from SRM12 (2017 to 2024)
- Base 2024 model includes full development traffic from SRM12 to 2024
- The average 14-hour weekday traffic flow through Sheriffhall Roundabout is estimated to increase by 6,040 (9%) vehicles from 67,530 in 2017 to 73,570 in 2024 in the Base scenario.



Traffic Forecasting and Future Demand at Sheriffhall Roundabout

Design 2024 Model: Additional Demand due to effects of Proposed Scheme

- Includes full development traffic from SRM12 to 2024
- Includes additional demand at Sheriffhall Junction from SRM12 due to traffic reassignment from the wider network
- Paramics Simulation Model indicates that:
 - The trip matrices defined for the more lightly trafficked Inter-Peak period include the full 100% predicted additional demand defined by the SRM12 model with the proposed Sheriffhall improvement.
 - the trip matrices defined for the heavily congested AM and PM periods could accommodate an increase of only 25% of the predicted additional demand defined by SRM12 with the proposed Sheriffhall improvement.
- In the Design Model, the traffic flow through Sheriffhall Roundabout would increase by approximately 3,760 (5%) vehicles to 77,270 due to grade-separation.



Proposed Scheme

Proposed Scheme



The proposed Scheme will upgrade the Sheriffhall Roundabout to a grade separated junction:

- A720 City of Edinburgh Bypass to be realigned over a length of 1.6km.
- Sheriffhall Roundabout to be enlarged to become a 8-arm roundabout.
- All side roads will be realigned to tie into the enlarged roundabout.
- Grade separated routes for Non-Motorised Users (NMU) will be provided to allow safe crossing of the junction.

Proposed Scheme



Visualisation of the Proposed Scheme looking east along the A720



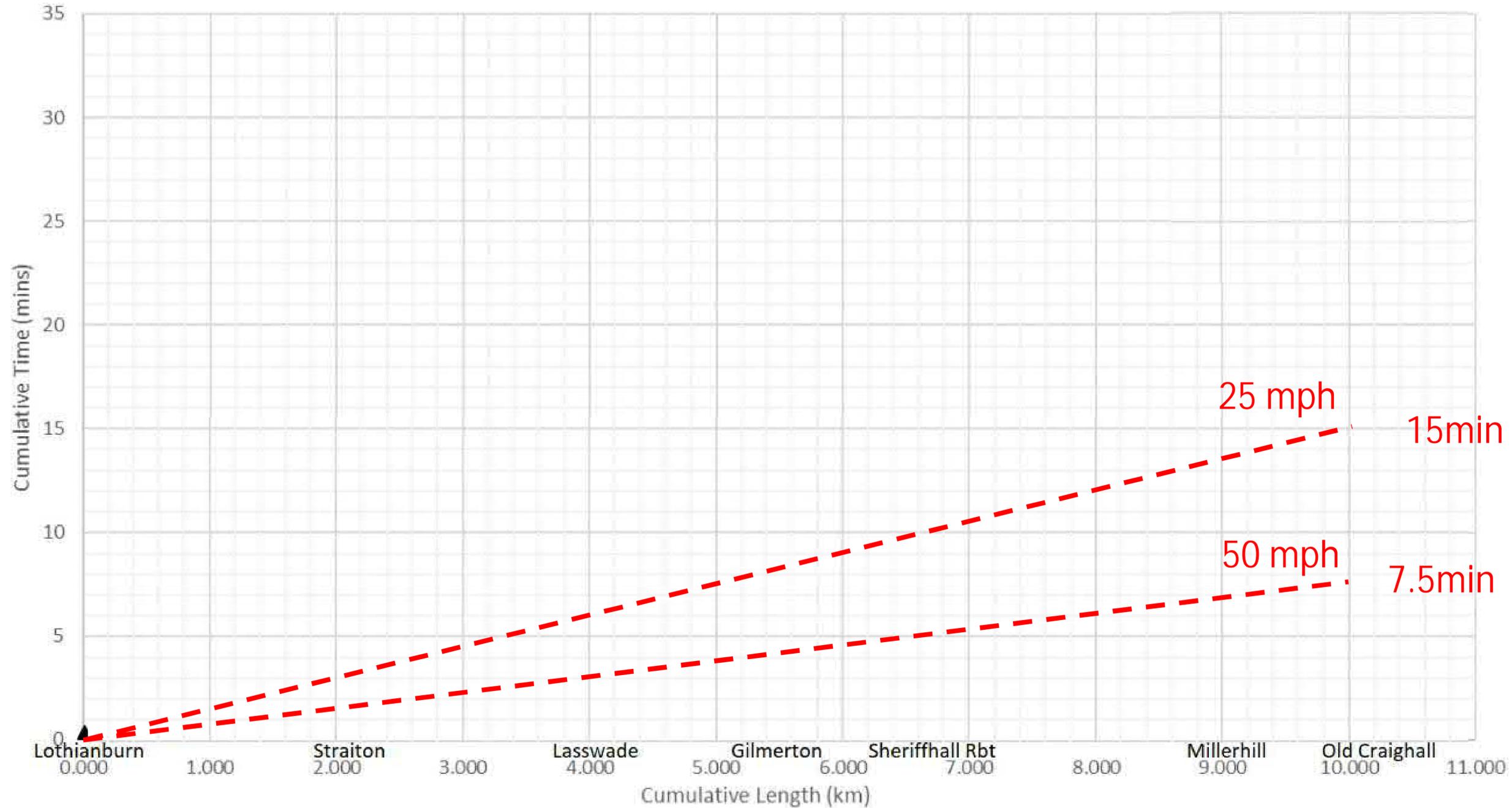
Proposed Scheme



A720 Operating Conditions

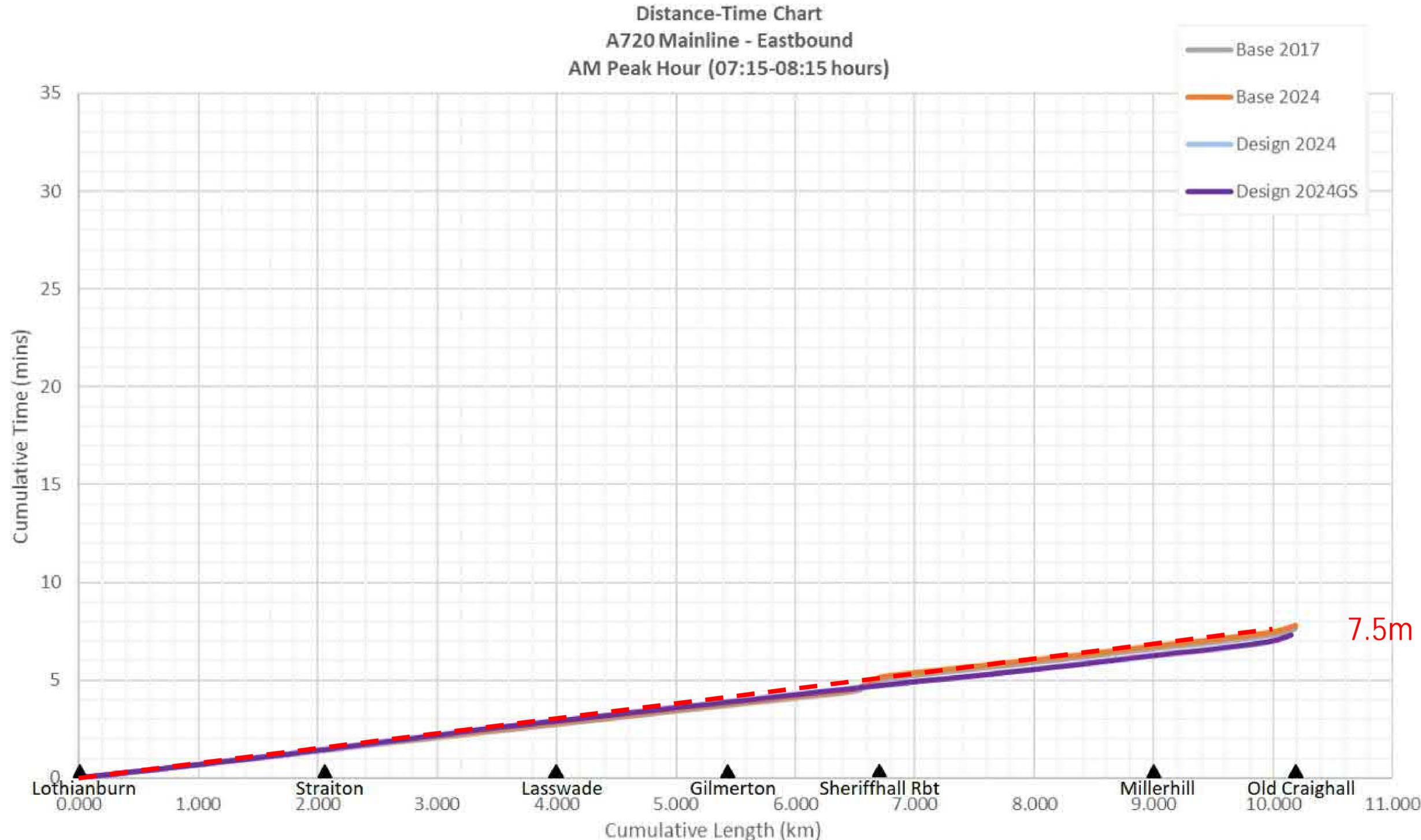
A720 Operating Conditions Distance-Time Chart

Distance-Time Chart
A720 Mainline - Eastbound



A720 Operating Conditions

Distance-Time Chart: A720 Eastbound, AM Peak Hour



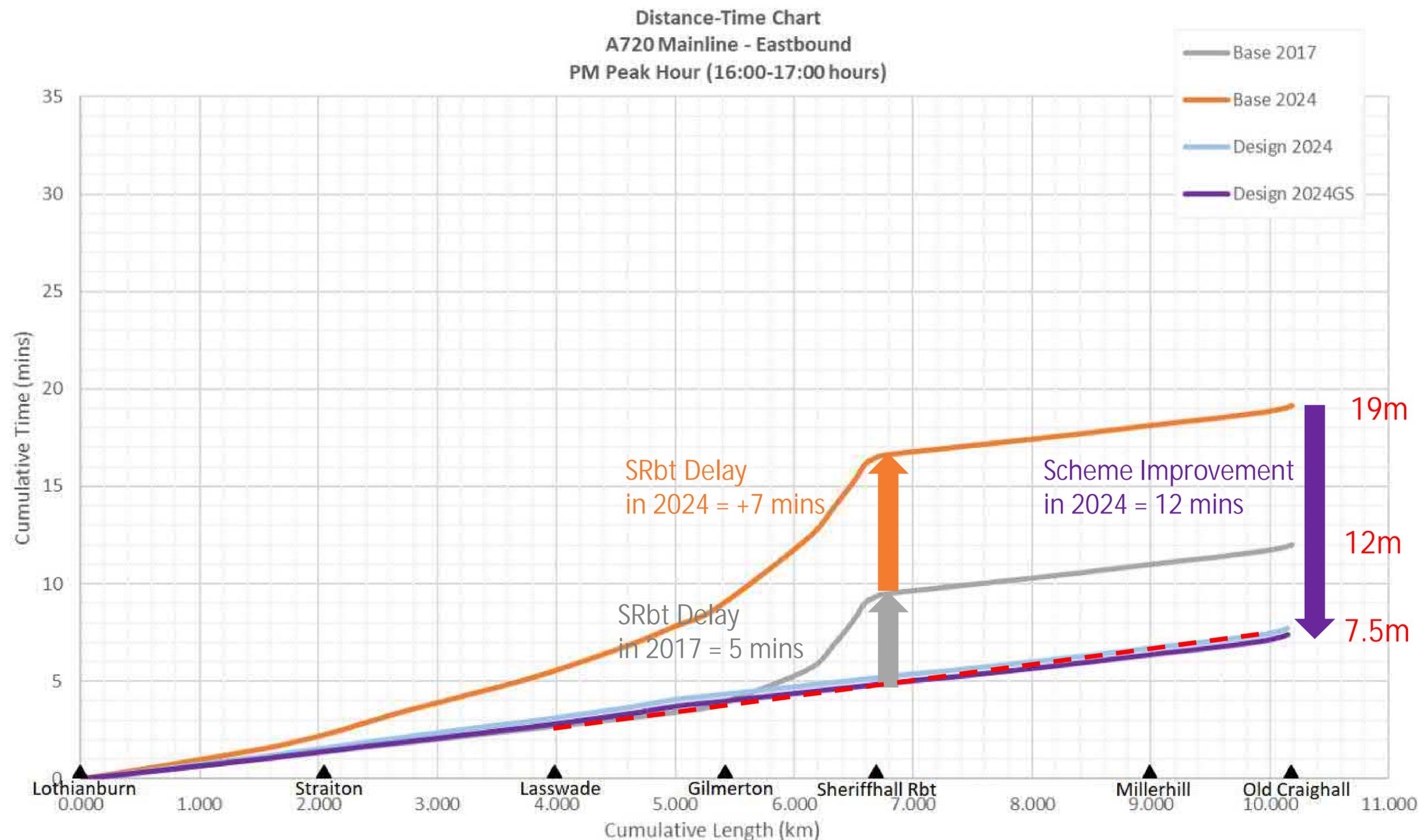
Paramics Simulation

Peak Hour Period

- Each simulation models the interaction between 156,000 vehicles on the network
- Results based on the average of multiple simulations of the 24-Hour model
- Base and Design Models
- Years: 2017 & 2024

A720 Operating Conditions

Distance-Time Chart: A720 Eastbound, PM Peak Hour



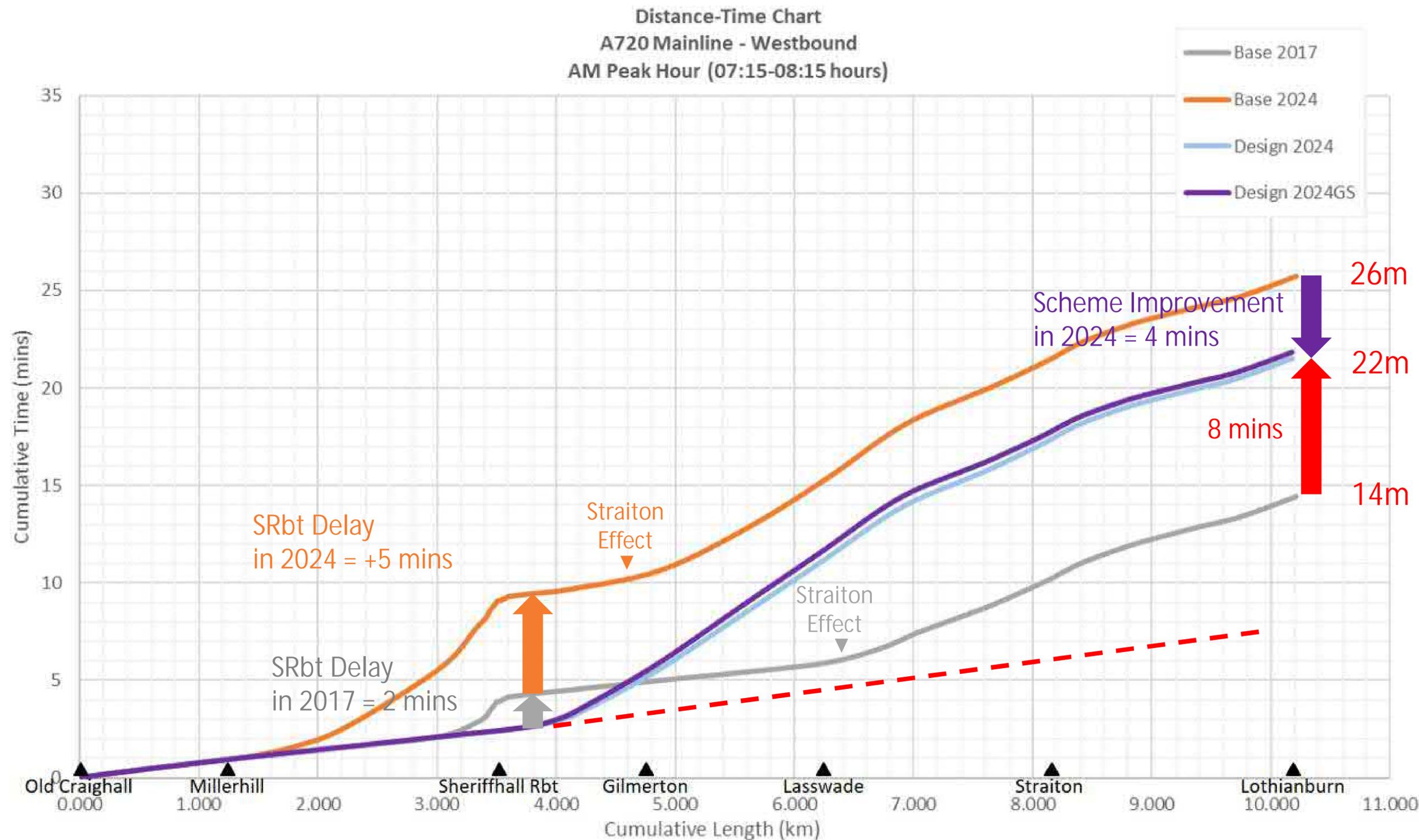
Paramics Simulation

Peak Hour Period

- Results based on the average of multiple simulations of the 24-Hour model
- Years: 2017 & 2024

A720 Operating Conditions

Distance-Time Chart: A720 Westbound, AM Peak Hour

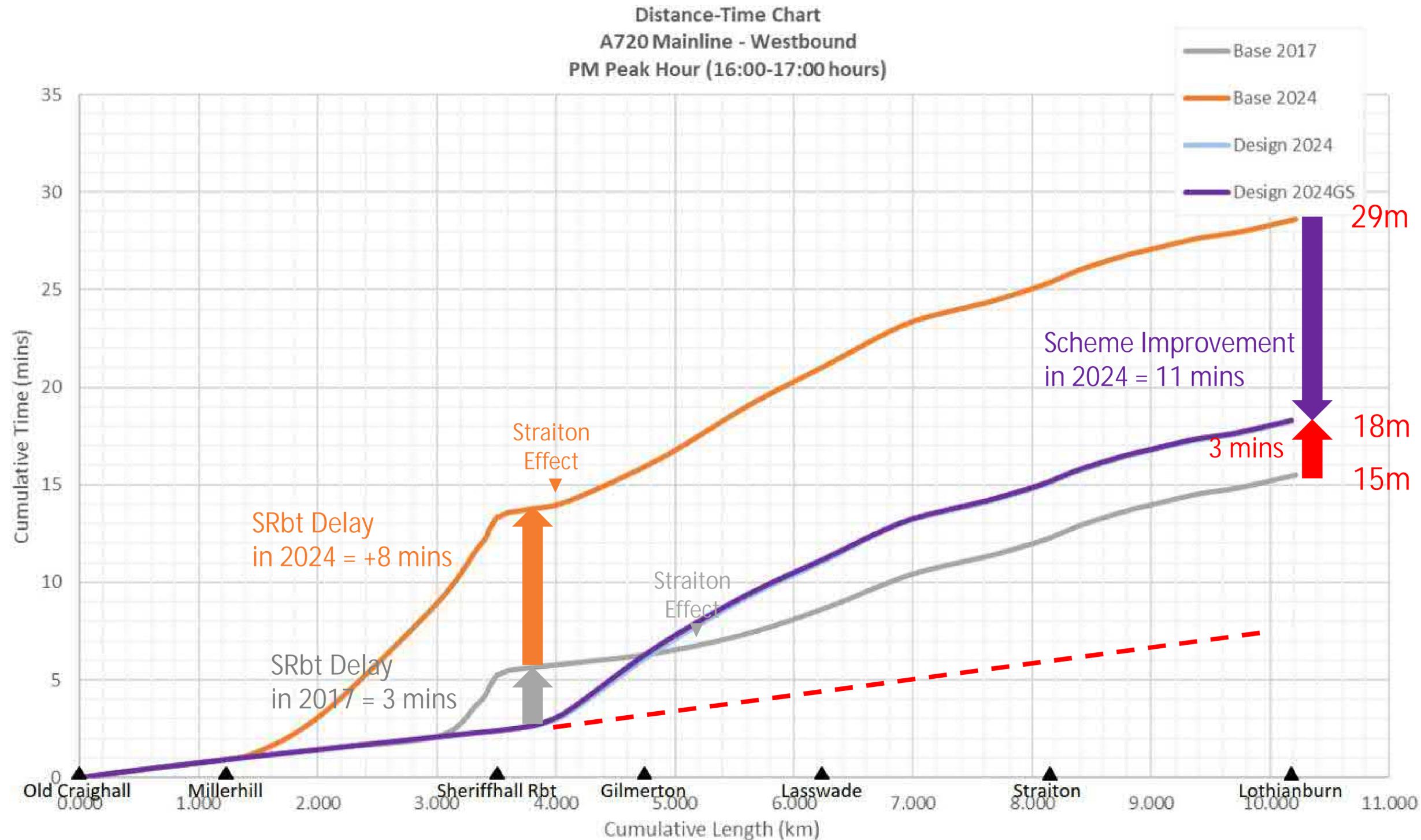


Paramics Simulation Peak Hour Period

- Results based on the average of multiple simulations of the 24-Hour model
- Years: 2017 & 2024

A720 Operating Conditions

Distance-Time Chart: A720 Westbound, PM Peak Hour



Paramics Simulation

Peak Hour Period

- Results based on the average of multiple simulations of the 24-Hour model
- Years: 2017 & 2024

A720 Operating Conditions

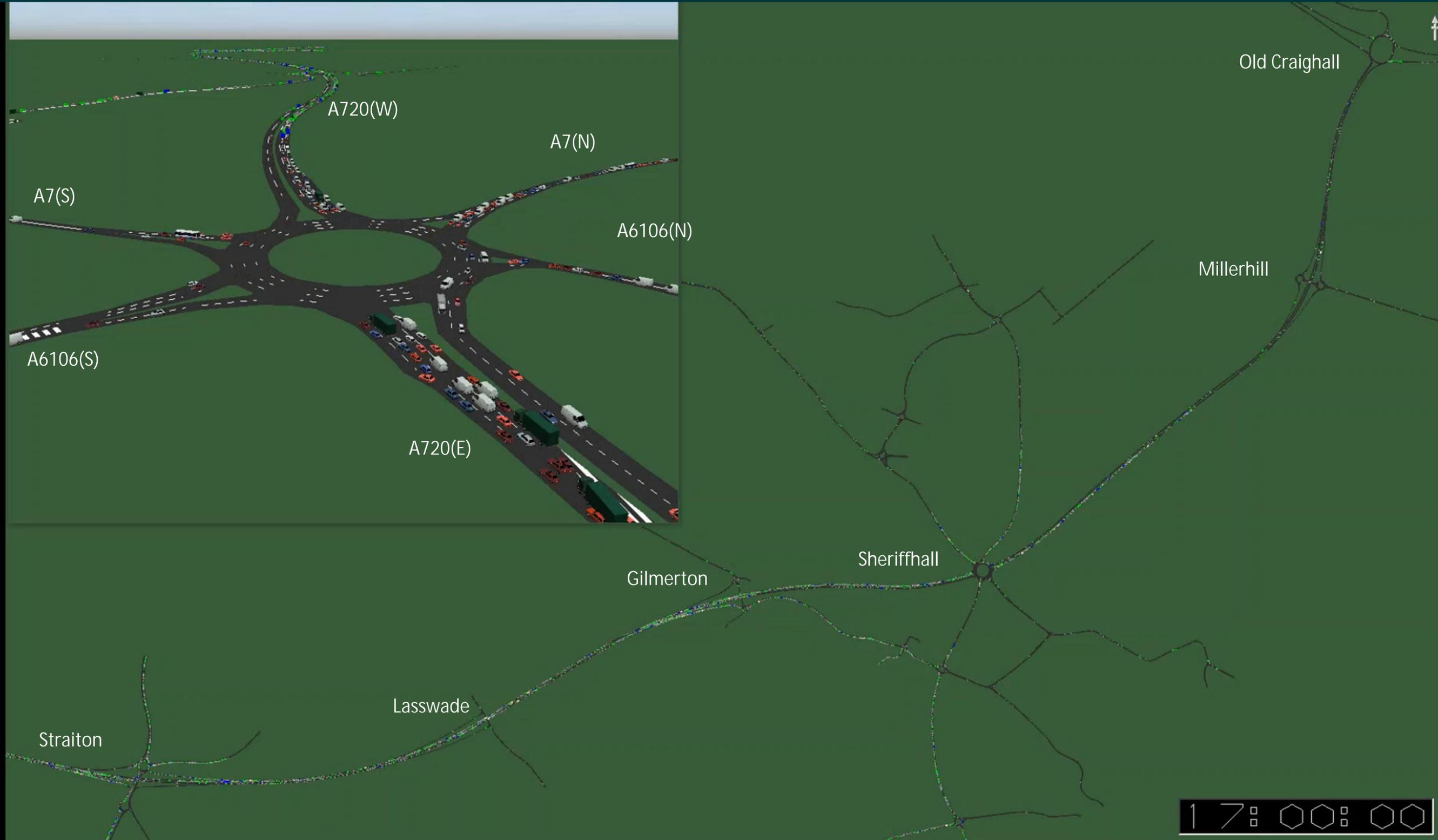
A720 Route – Journey Time Savings Due to Proposed Scheme

Time Period	Direction	Base 2024 Speed (mph)	Design 2024GS Speed (mph)	Speed Diff. (mph)	Base 2024 Time (mins)	Design 2024GS Time (mins)	Time Diff. (mins)	Time Diff. (%)
Total (14-Hour)	E/b	34	52	+18	11.2	7.3	-3.9	-35%
Total (14-Hour)	W/b	26	35	+9	14.8	10.9	-3.9	-26%

Note: The above results are based on the averages of 15 simulation runs over a 10km section of the A720.

- Comparison of Journey Times and Speeds along the A720
- 2024 Year of Opening
- 14-Hour Time Savings: 26% to 35%

A720 Operating Conditions Paramics Simulation – PM Peak Scenario, Base Model



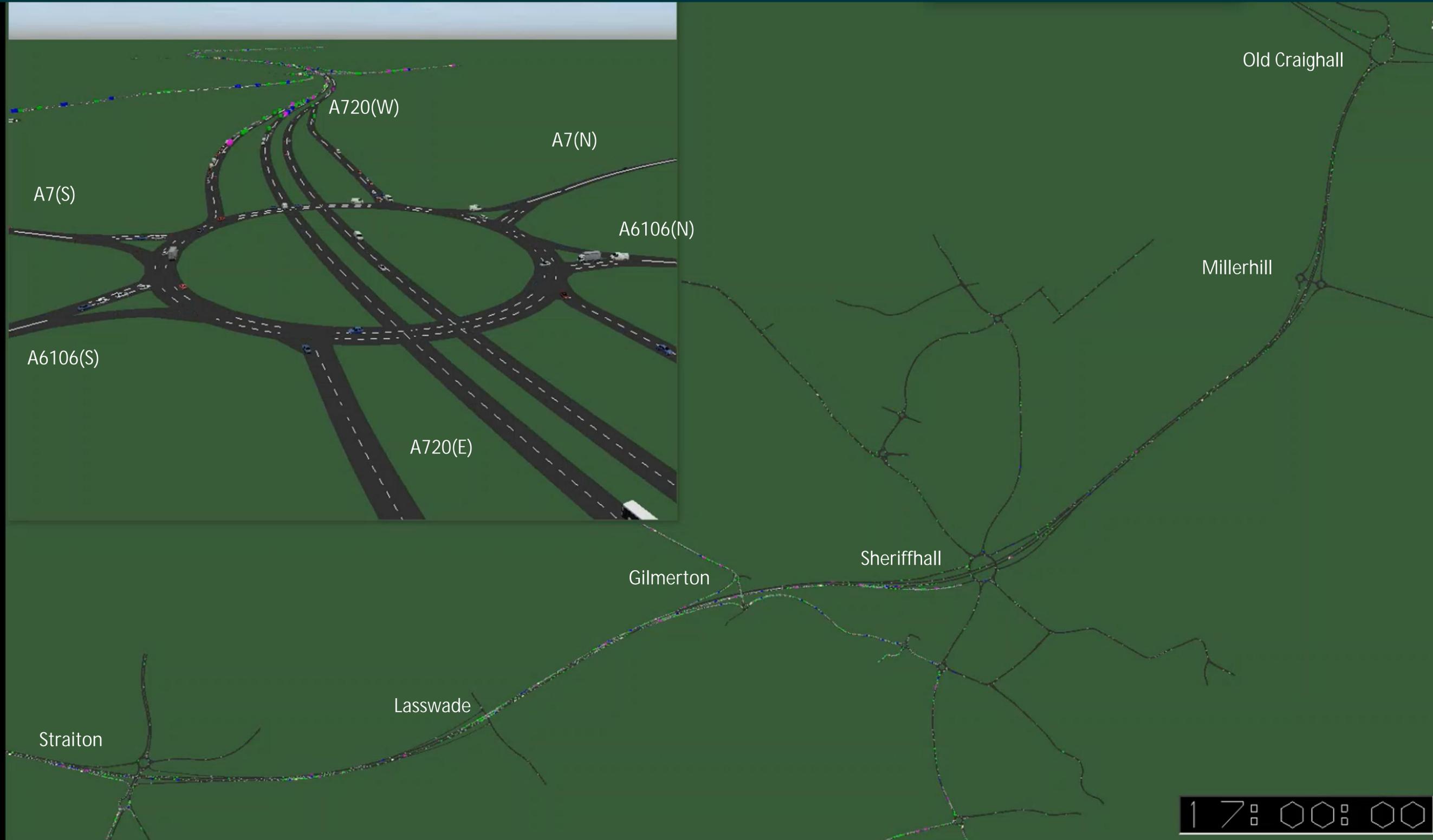
Paramics
Simulation

Full Modelled
Network

PM Peak Period

- Scenario: Base
- Year: 2024
- Time: 17:00 to 17:05

A720 Operating Conditions Paramics Simulation – PM Peak Scenario, Design Model



Paramics
Simulation

Full Modelled
Network

PM Peak Period

- Scenario: Design
- Year: 2024
- Time: 17:00 to 17:05

Public Transport Bus Routes and Journey Times

Public Transport - Bus Routes and Journey Times

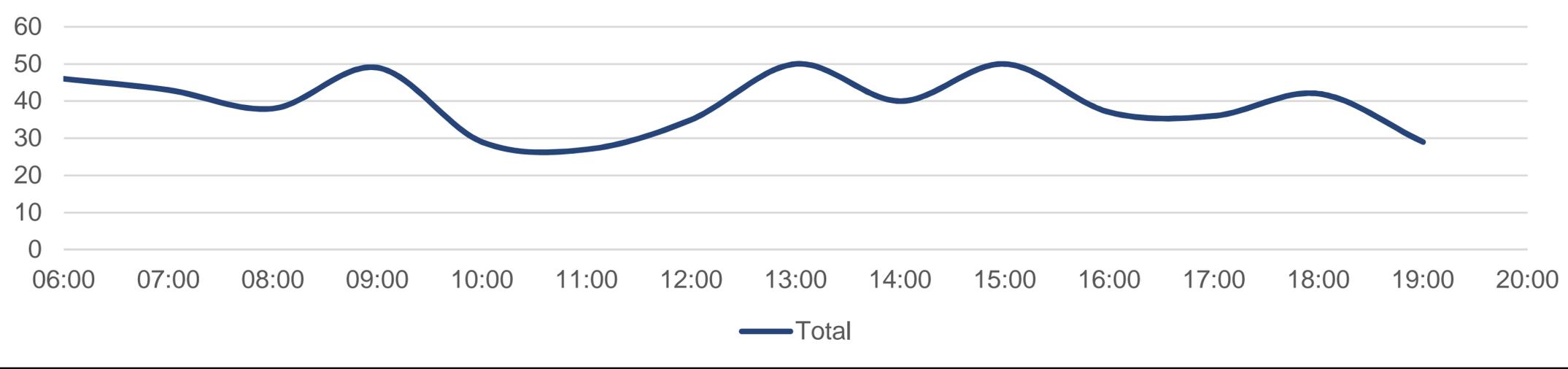
PSV Turning Movements at Sheriffhall Roundabout

Approach Road	A7 (N)	A6106 (N)	A720 (E)	A6106 (S)	A7 (S)	A720 (W)	Total
A7 (N)	0	0	12	124	15	3	154
A6106 (N)	0	0	0	4	2	2	8
A720 (E)	6	0	0	3	13	77	99
A6106 (S)	120	0	5	0	0	17	142
A7 (S)	14	2	15	1	0	2	34
A720 (W)	6	1	89	17	1	0	114
Total	146	3	121	149	31	101	551

PSV Turning Movements at Sheriffhall Roundabout

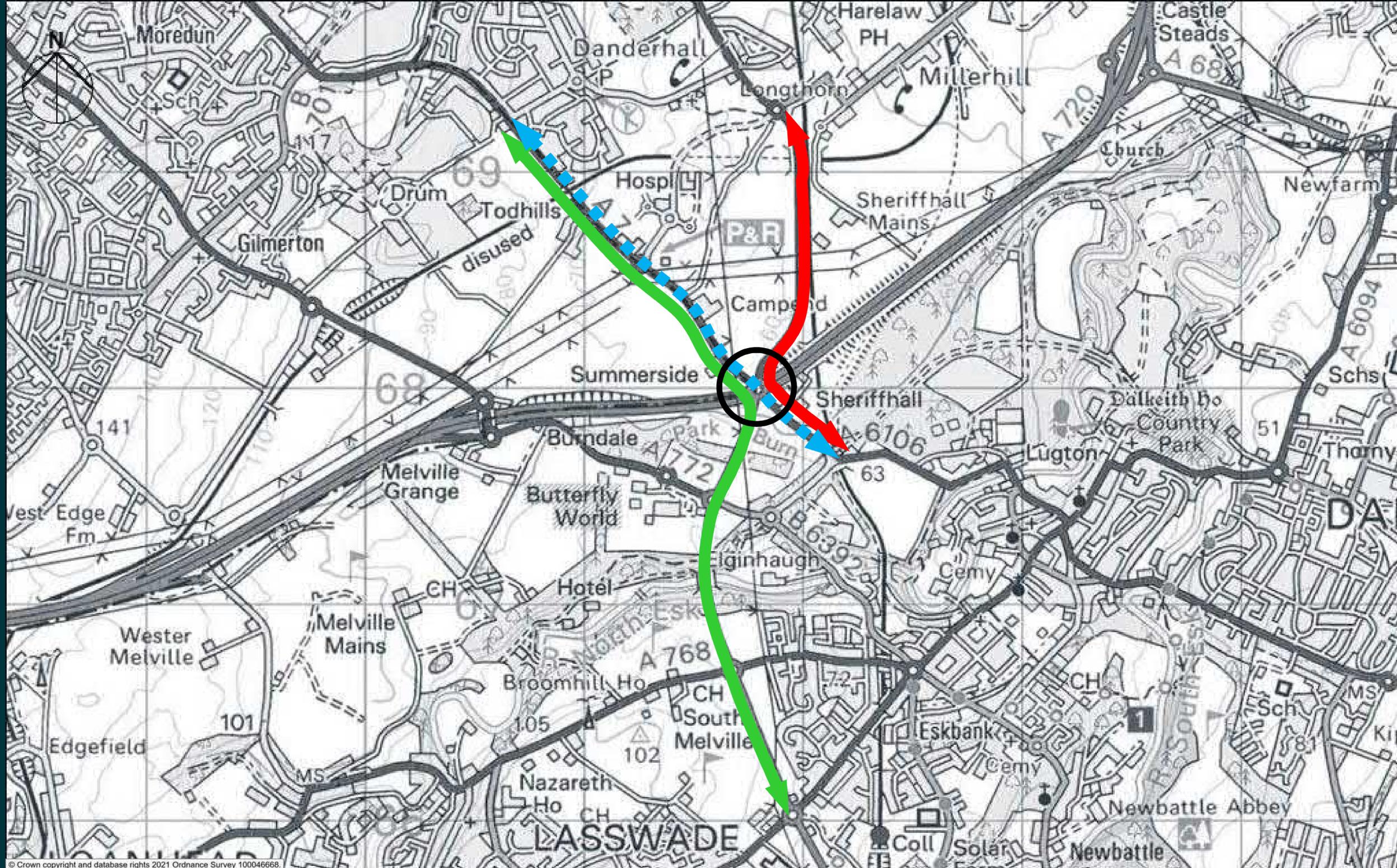
- May 2017
- 14-Hour PSV Flows
- 551 PSVs through Rbt
- A720 PSVs = 166 (30%)
- A7(N) / A6106(S) PSVs = 244 (44%)
- Ave. PSVs (total) = 40/hr two-way
- Generally Uniform Profile
- Ave PSVs (A7 / A6106) = 17/hr two-way

Observed PSVs (Hourly) through Sheriffhall Roundabout



Public Transport - Bus Routes and Journey Times

Routes and Journey Times Through Sheriffhall Roundabout

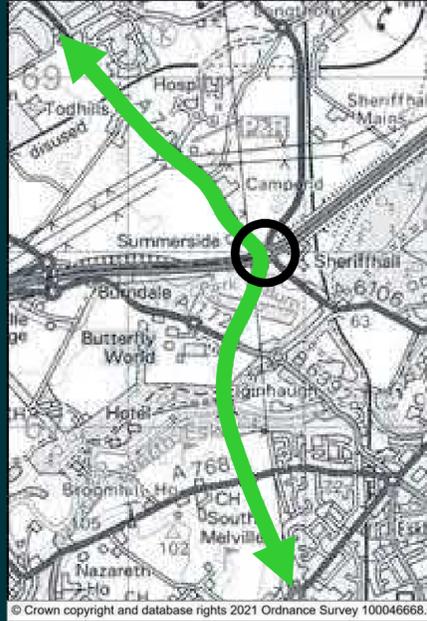


Routes and Journey Times Through Sheriffhall Roundabout

- A7 Route (4km)
- A6106 Route (2km)
- A7 / A6106 Route (2km)

Public Transport - Bus Routes and Journey Times

A7 Route – Journey Time Savings Due to Proposed Scheme



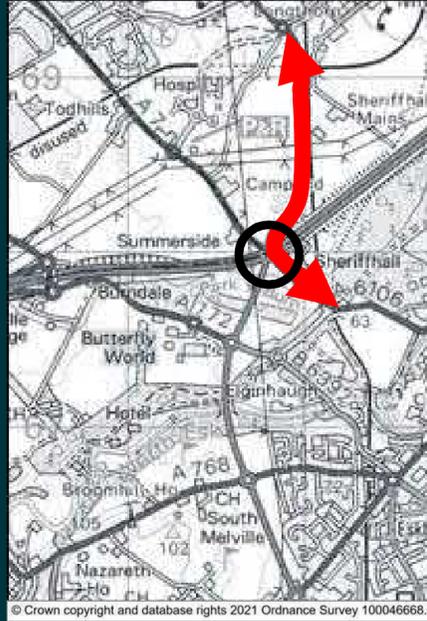
Time Period	Direction	Base 2024 Speed (mph)	Design 2024GS Speed (mph)	Speed Diff. (mph)	Base 2024 Time (mins)	Design 2024GS Time (mins)	Time Diff. (mins)	Time Diff. (%)
Total (14-Hour)	N/b	16	23	+7	8.8	6.2	-2.7	-30%
Total (14-Hour)	S/b	20	26	+6	7.3	5.6	-1.7	-23%

Note: The above results are based on the averages of 15 simulation runs over a 4km section of the A7.

- Comparison of Journey Times and Speeds on the A7 Old Dalkeith Road
- 2024 Year of Opening
- 14-Hour Time Savings: 23% to 30%

Public Transport - Bus Routes and Journey Times

A6106 Route – Journey Time Savings Due to Proposed Scheme



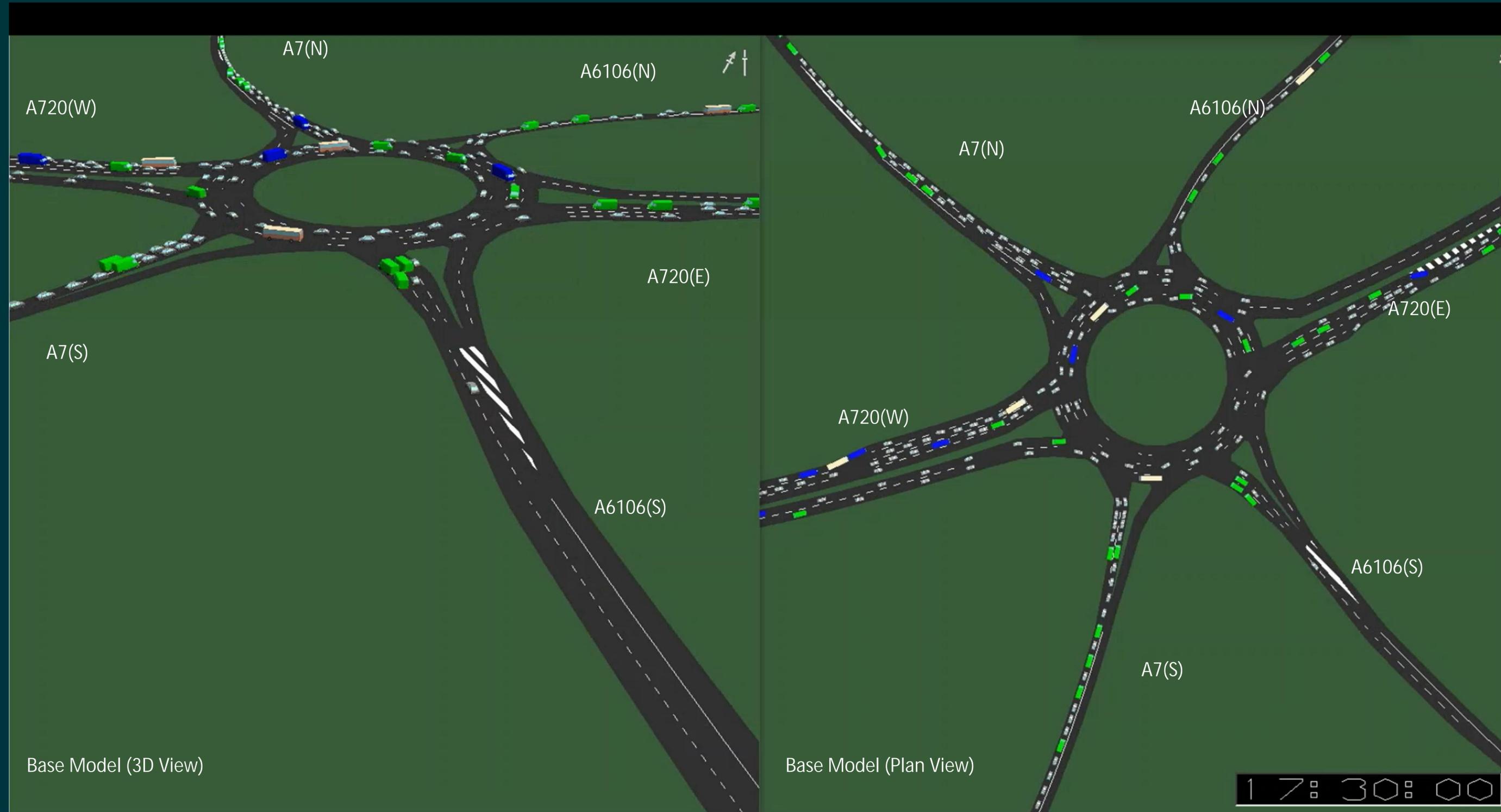
Time Period	Direction	Base 2024 Speed (mph)	Design 2024GS Speed (mph)	Speed Diff. (mph)	Base 2024 Time (mins)	Design 2024GS Time (mins)	Time Diff. (mins)	Time Diff. (%)
Total (14-Hour)	N/b	26	28	+2	2.8	2.6	-0.2	-8%
Total (14-Hour)	S/b	7	26	+19	9.7	2.7	-7.0	-72%

Note: The above results are based on the averages of 15 simulation runs over a 2km section of the A6106.

- Comparison of Journey Times and Speeds on the A6106 Millerhill Road
- 2024 Year of Opening
- 14-Hour Time Savings: 8% to 72%

Public Transport - Bus Routes and Journey Times

Paramics Simulation - PM Peak Period: Base Model



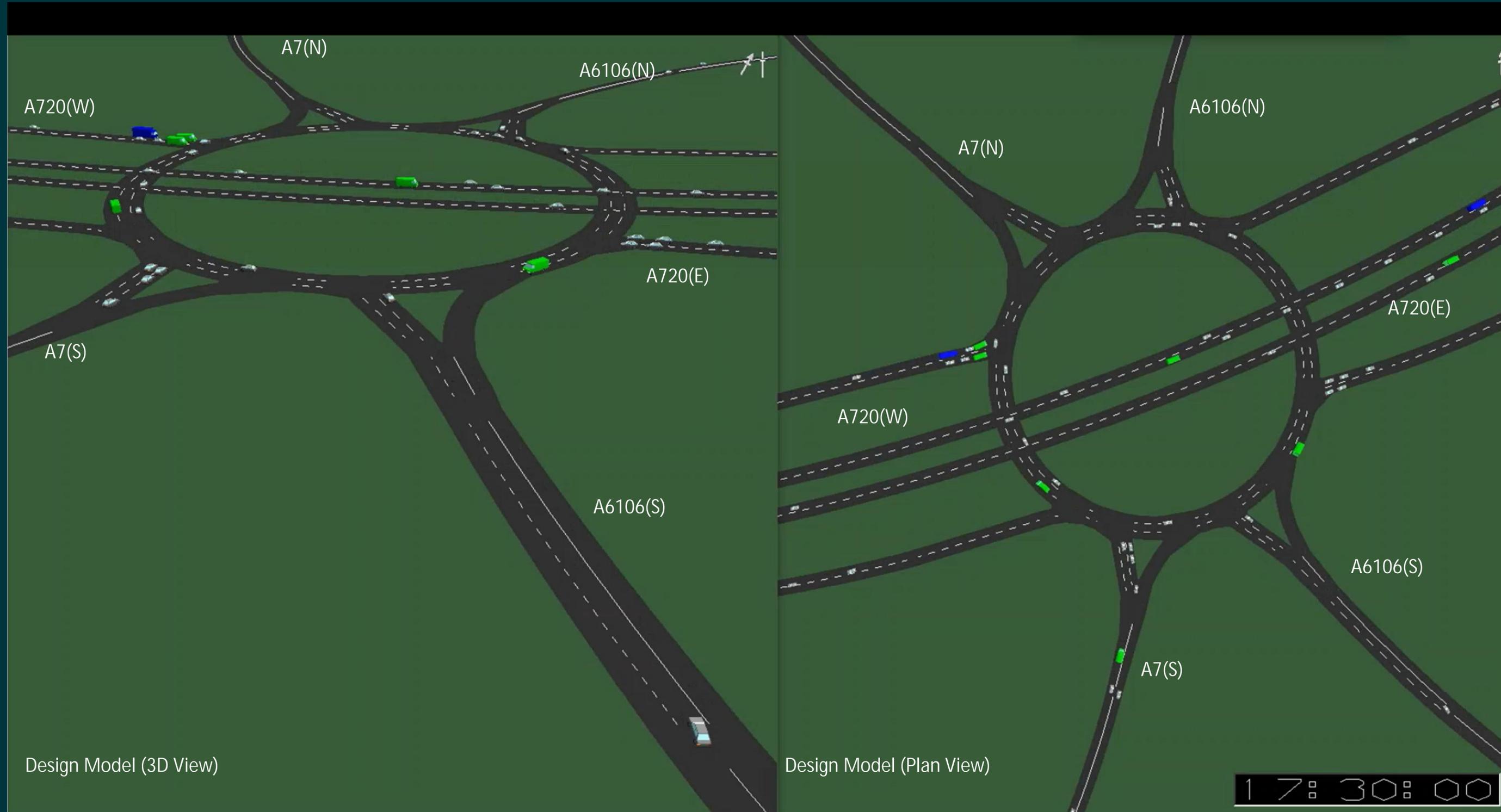
Paramics
Simulation

Sheriffhall Rbt

- PM Peak Period
- Scenario: Base
- Year: 2024
- Time: 17:30 to 17.35
- Queues on Approach Roads

Public Transport - Bus Routes and Journey Times

Paramics Simulation - PM Peak Period: Design Model



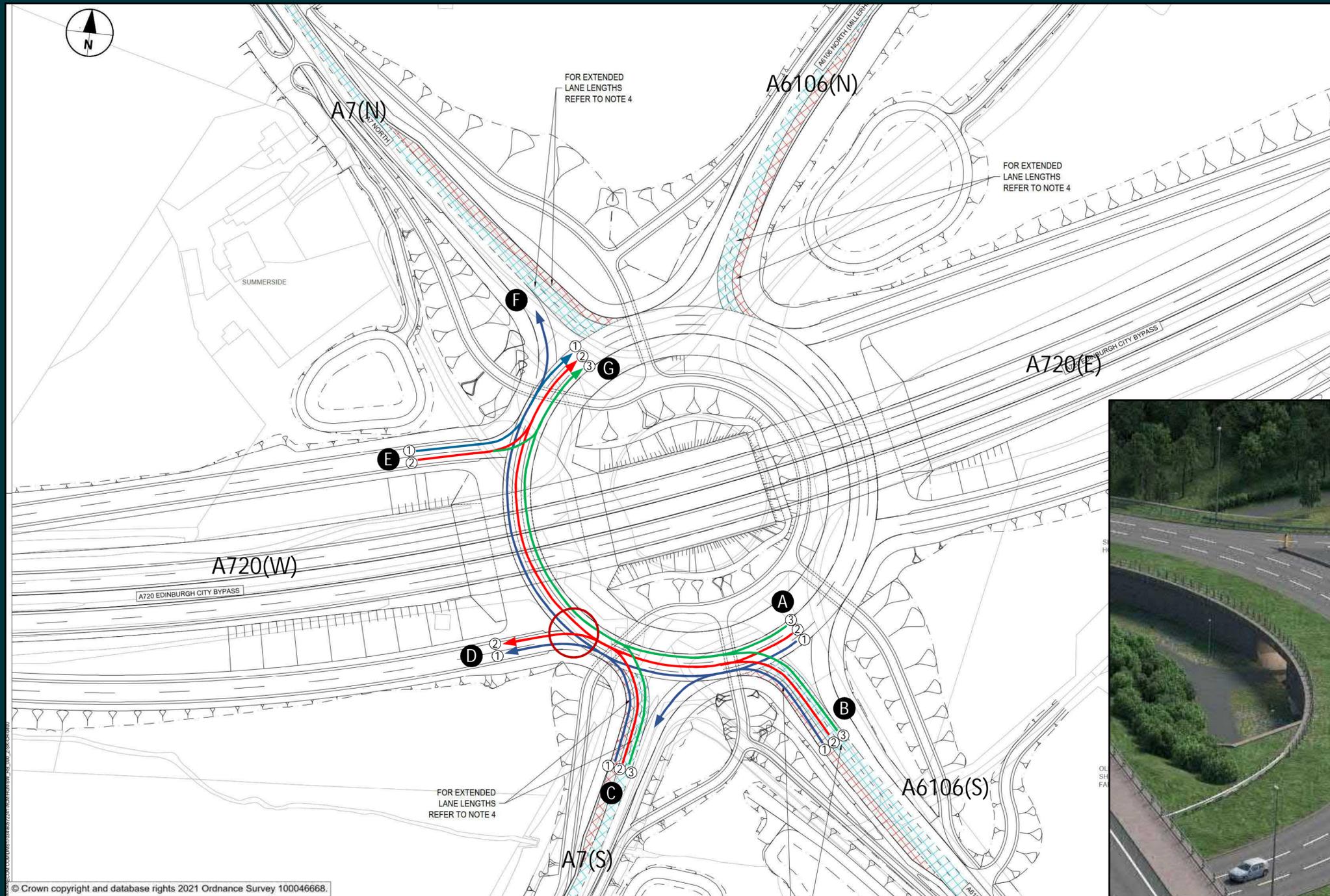
Paramics
Simulation

Sheriffhall Rbt

- PM Peak Period
- Scenario: Design
- Year: 2024
- Time: 17:30 to 17.35
- No queues on Approach Roads

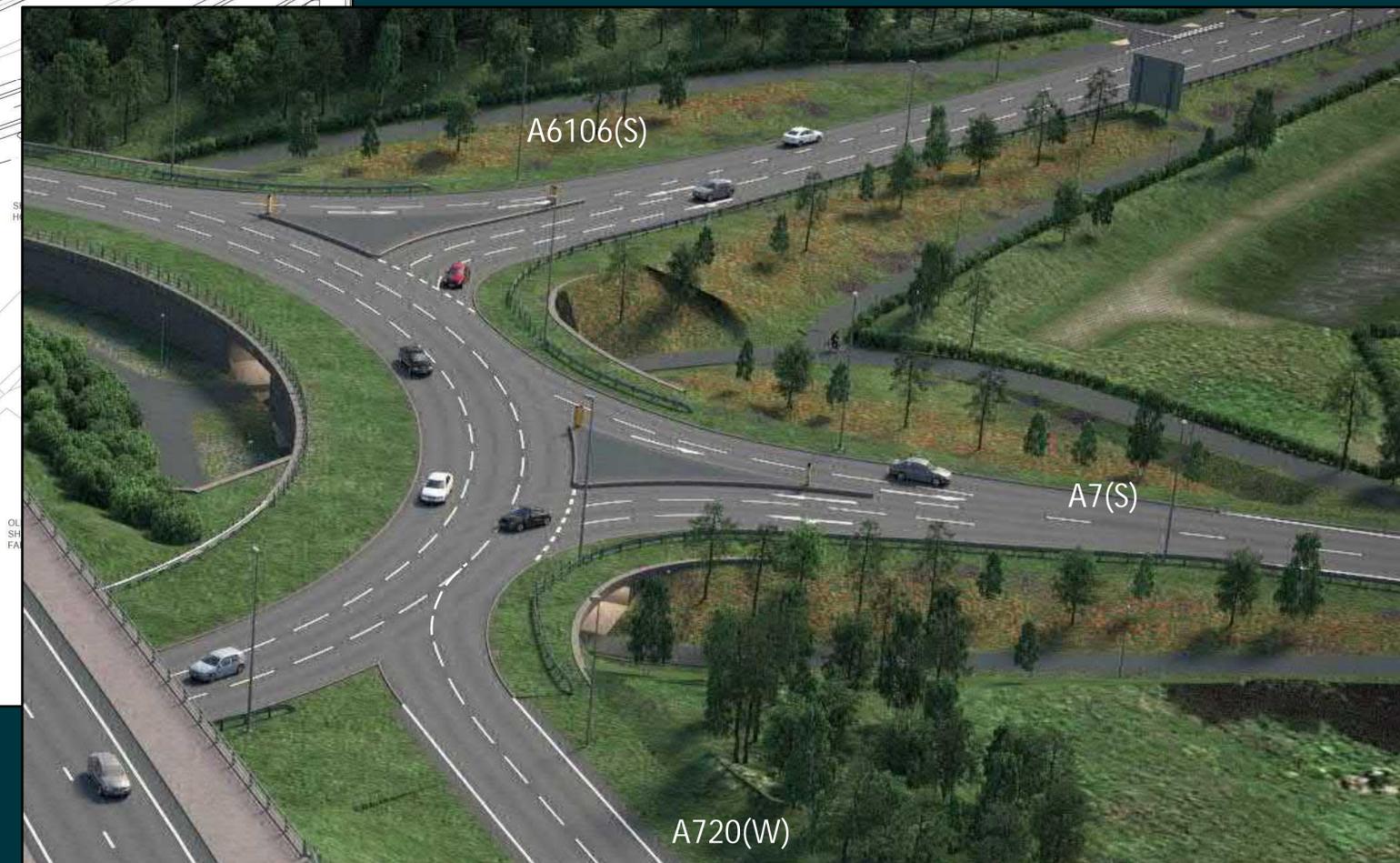
Public Transport - Bus Routes and Journey Times

Bus Lane Options



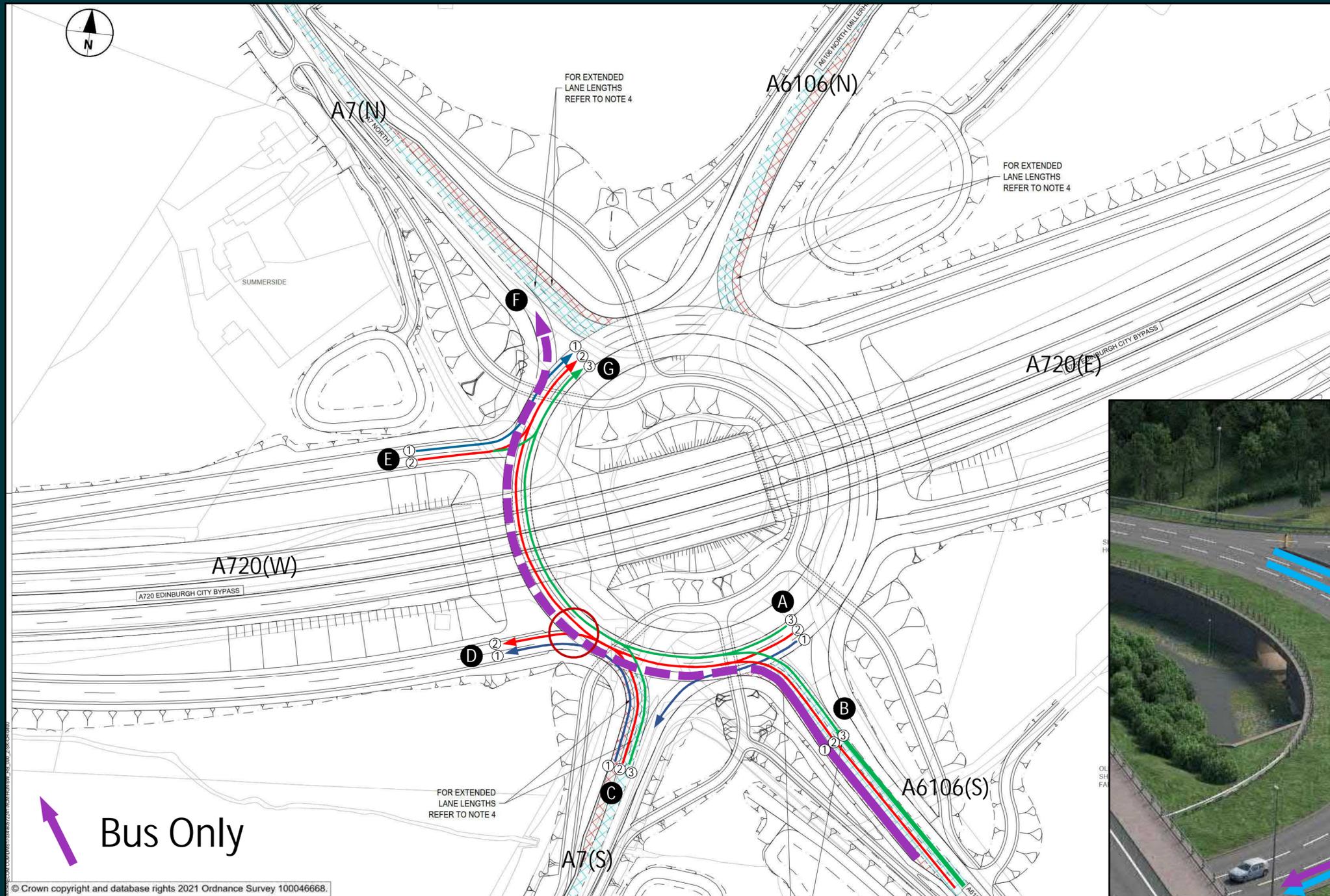
Bus Lane / Circulatory Carriageway Conflicting Movements

- A6106(S) to A7(N) Bus Movement
- Bus Only Lane 1
- Conflicting Movement between Circulatory Carriageway Exit Lane and A6106(S) Bus Only Lane 1 Approach



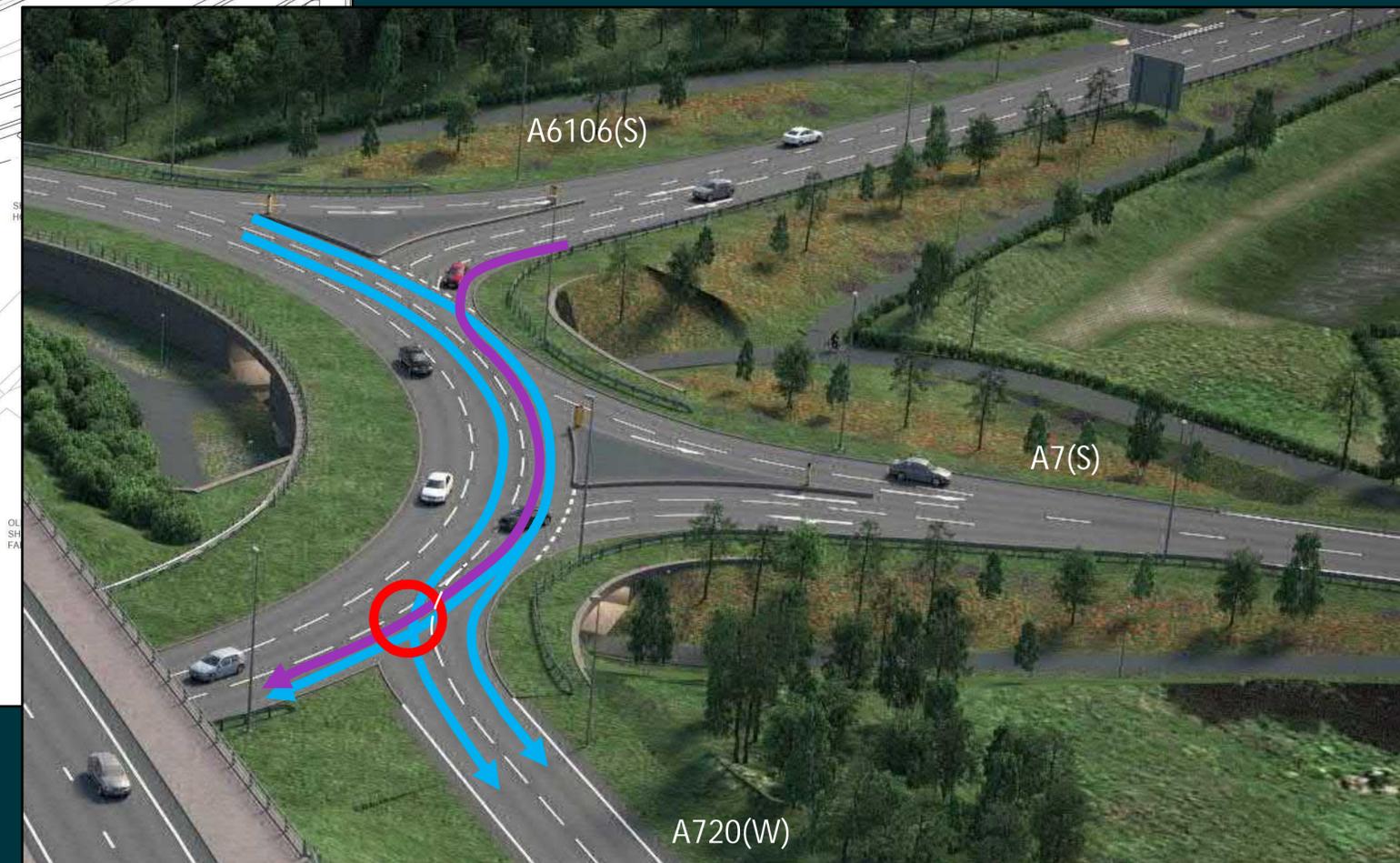
Public Transport - Bus Routes and Journey Times

Bus Priority Options



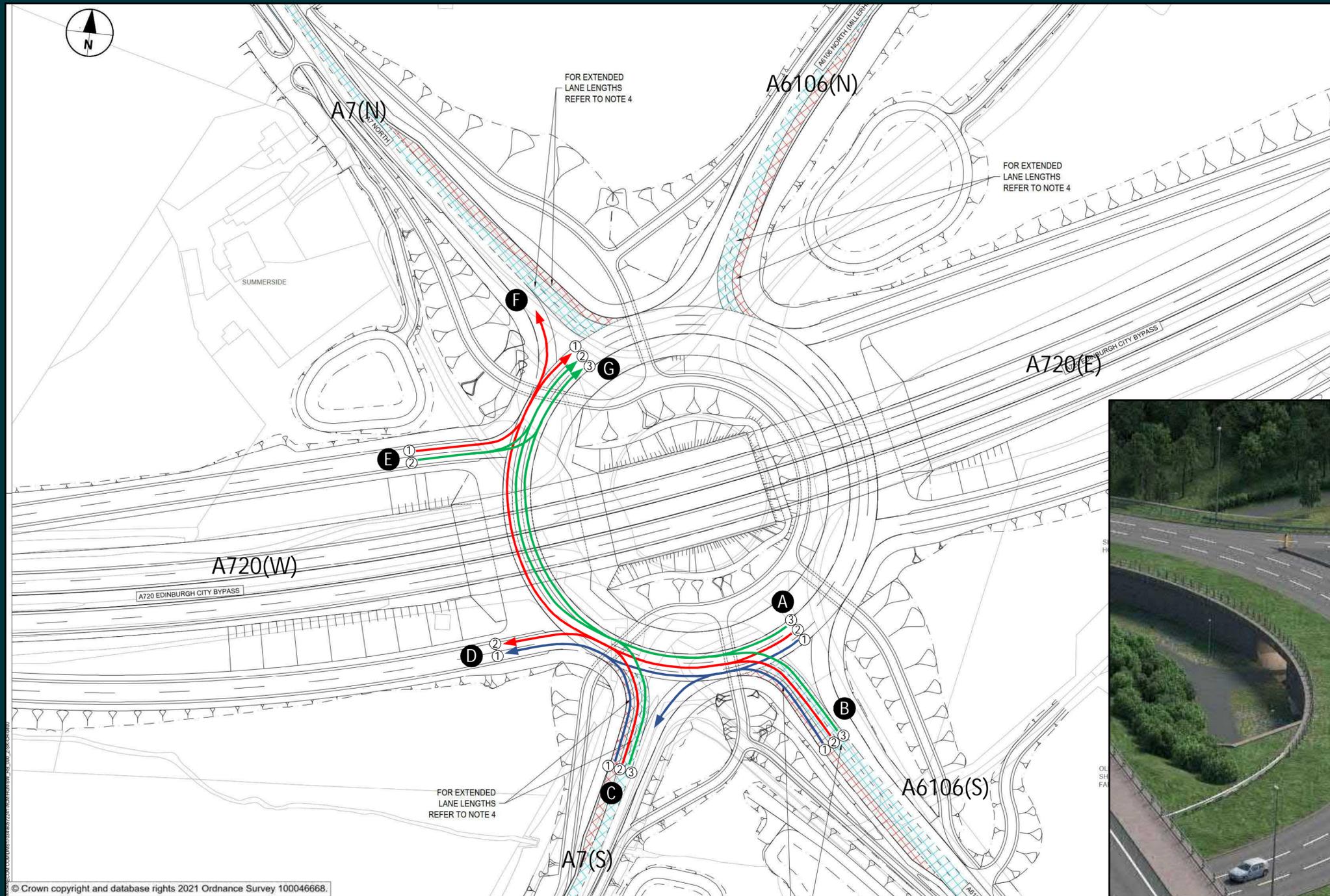
Bus Lane / Circulatory Carriageway Conflicting Movements

- A6106(S) to A7(N) Bus Movement
- Bus Only Lane 1
- Conflicting Movement between Circulatory Carriageway Exit Lane and A6106(S) Bus Only Lane 1 Approach



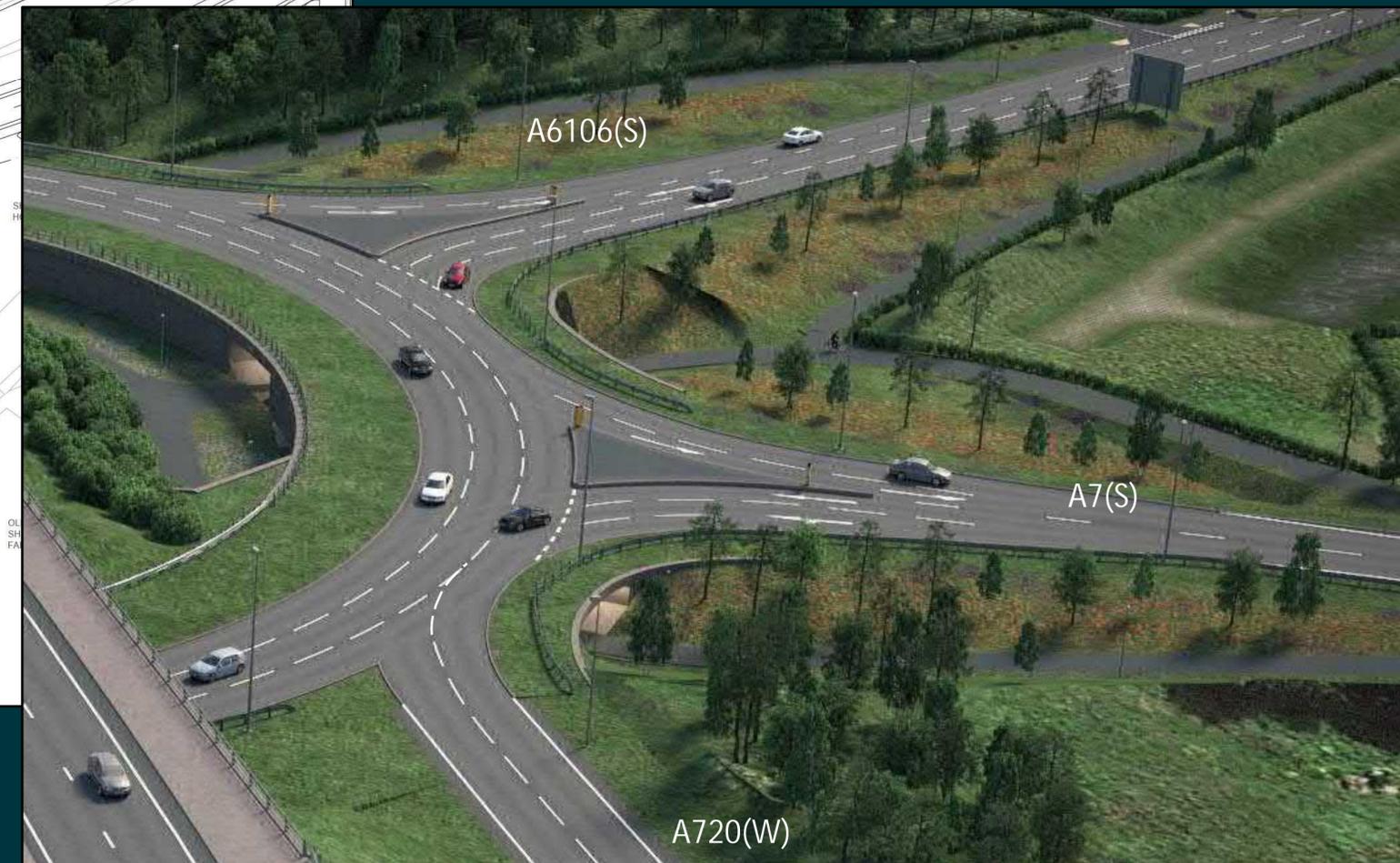
Public Transport - Bus Routes and Journey Times

Bus Priority Options



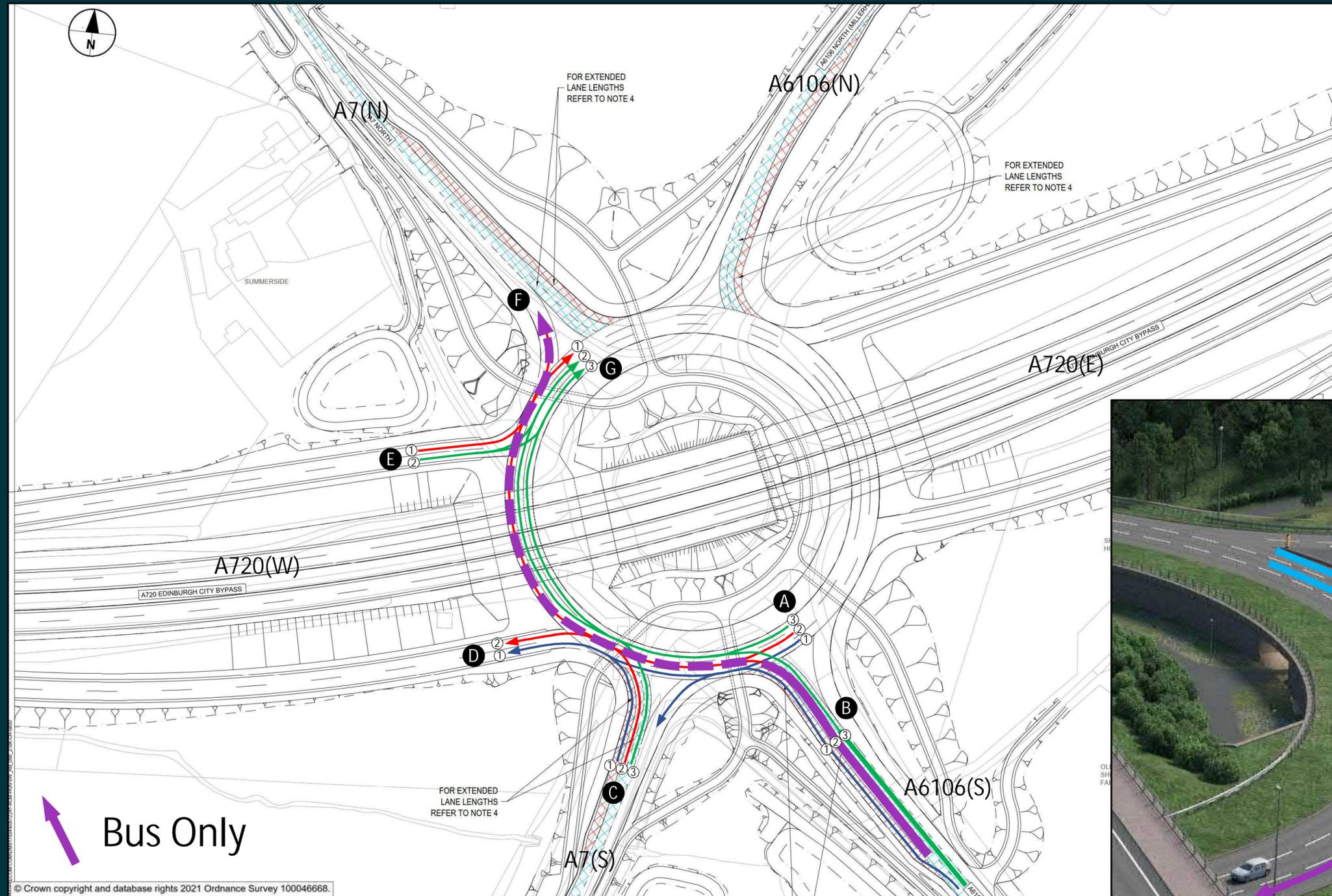
Bus Lane / Circulatory Carriageway Conflicting Movements

- A6106(S) to A7(N) Bus Movement
- Bus Only Lane 2
- No Conflicting Movement between Circulatory Carriageway Exit Lanes and A6106(S) Bus Only Lane 2 Approach



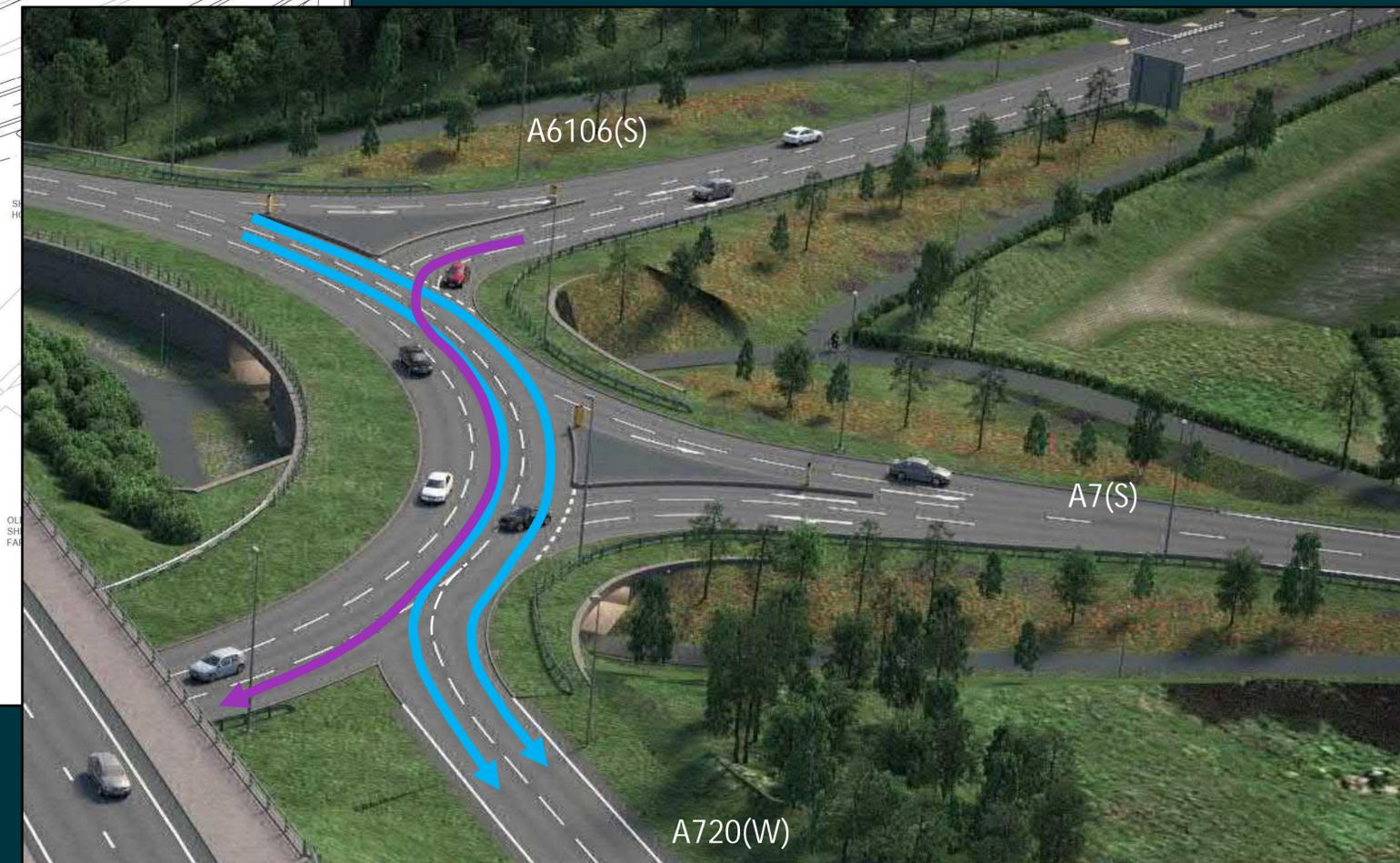
Public Transport - Bus Routes and Journey Times

Bus Priority Options



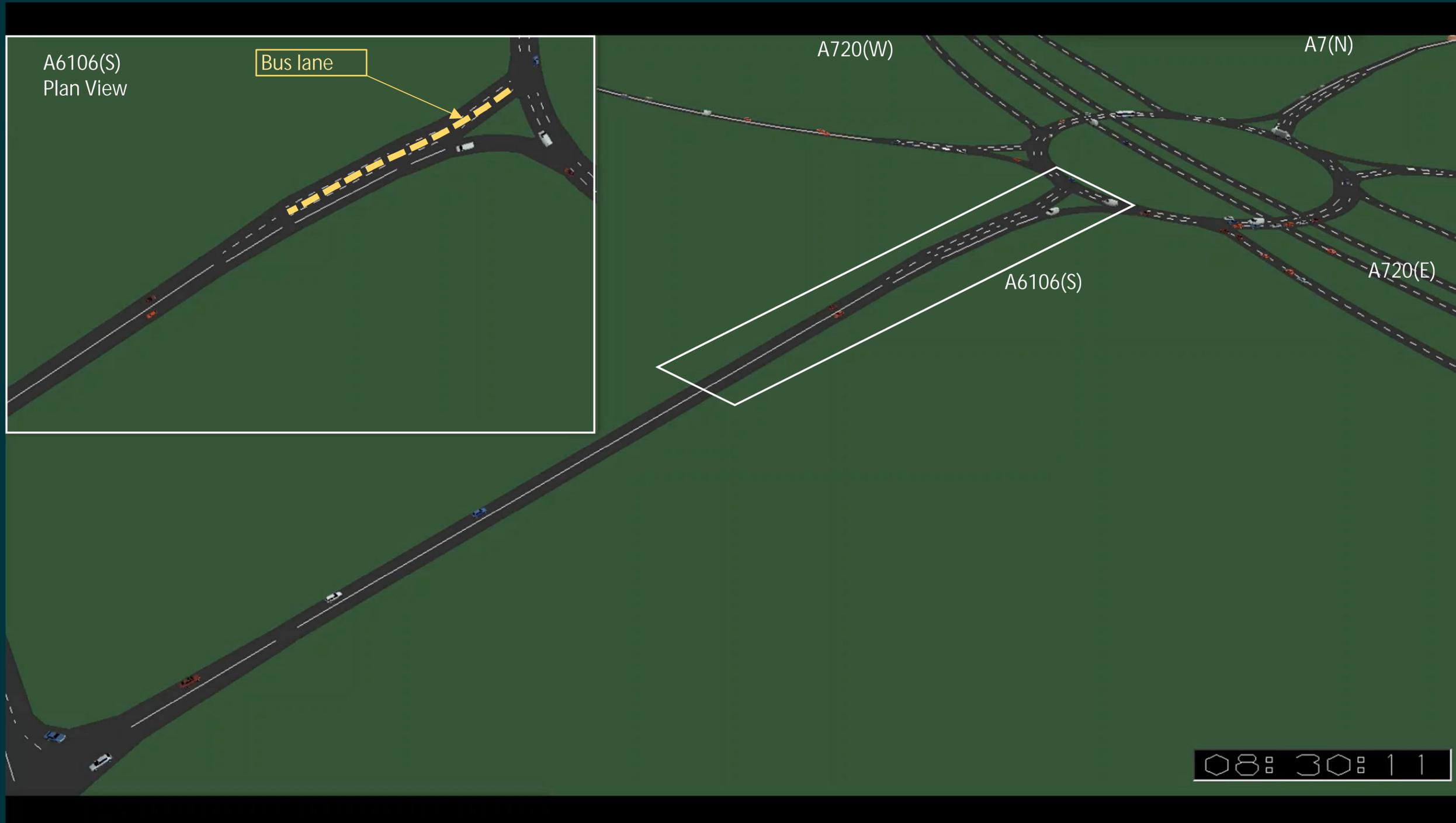
Bus Lane / Circulatory Carriageway Conflicting Movements

- A6106(S) to A7(N) Bus Movement
- Bus Only Lane 2
- No Conflicting Movement between Circulatory Carriageway Exit Lanes and A6106(S) Bus Only Lane 2 Approach



Public Transport - Bus Routes and Journey Times

A720 Paramics: Buses Only (Lane 2), AM Peak Period Simulation

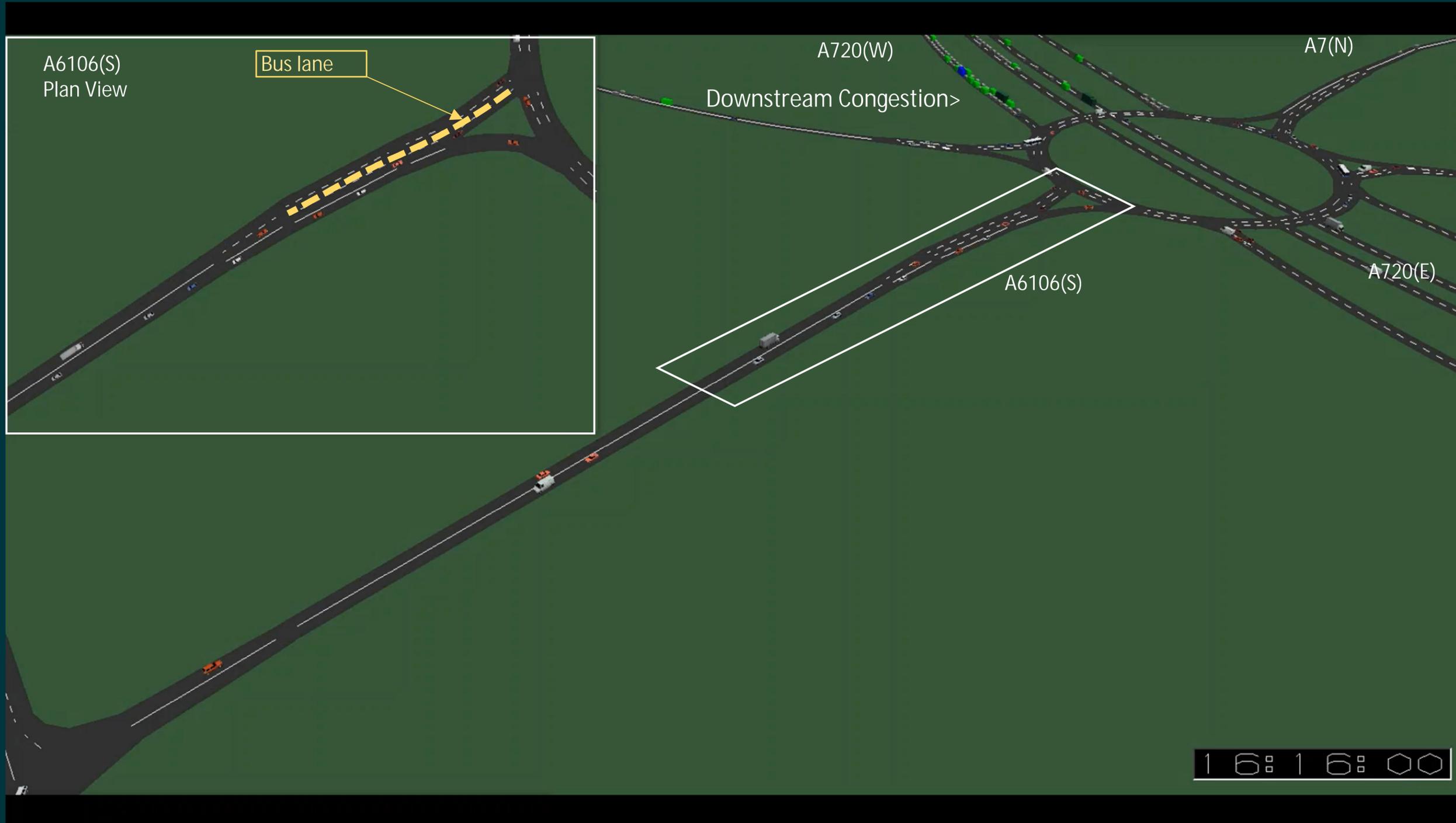


Modelling of Bus Lanes on A7(N) and A6106(S) in Lane 2

- AM Peak Period
 - Typical 5 mins
 - 08:30 to 08:35
- Key Findings
 - No queuing on the Sheriffhall Rbt approach roads
 - Bus only lanes would provide no additional benefit for bus movements

Public Transport - Bus Routes and Journey Times

A720 Paramics: Buses Only (Lane 2), PM Peak Period Simulation

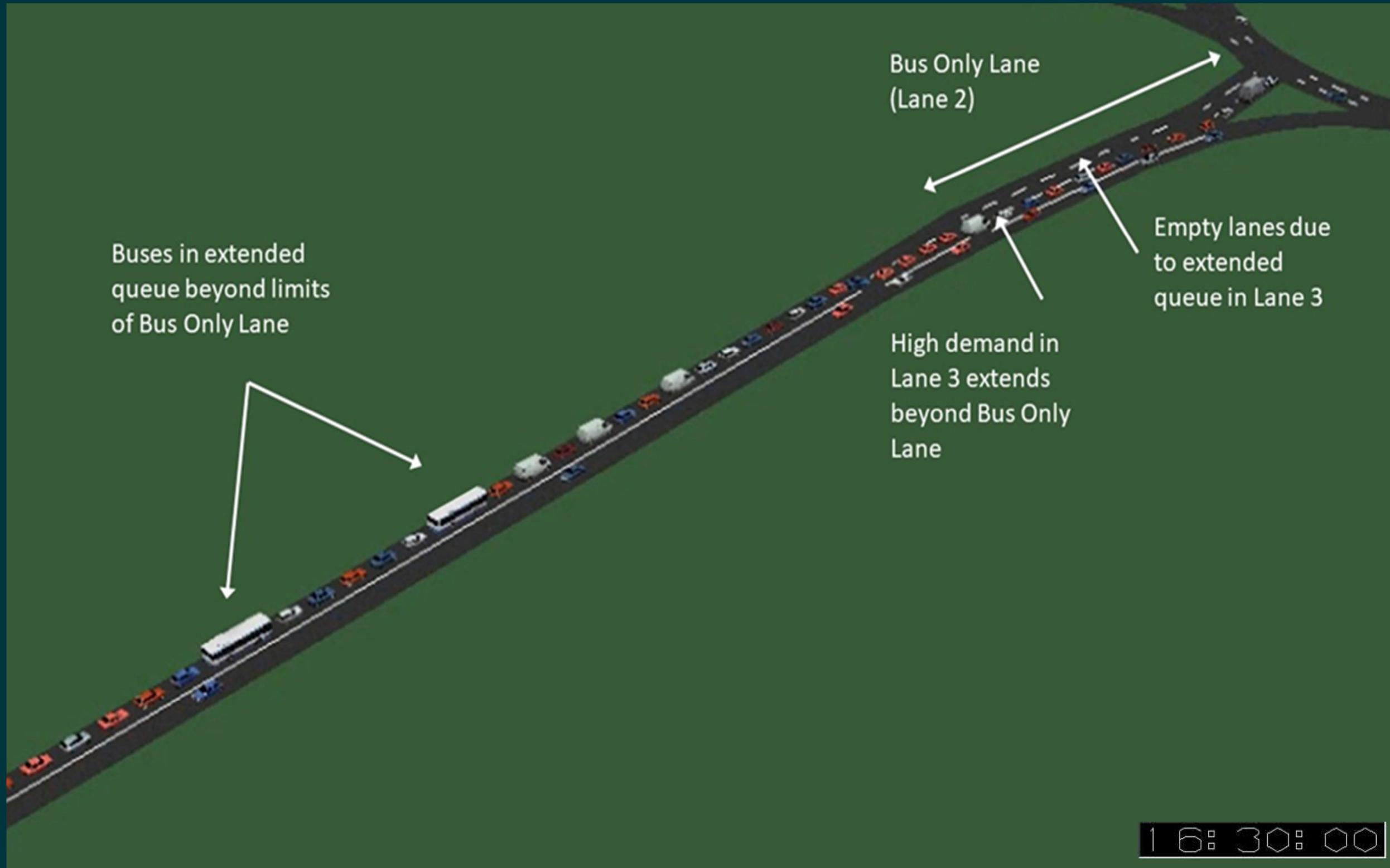


Modelling of Bus Lanes on A7(N) and A6106(S) in Lane 2

- PM Peak Period
 - Peak 30 mins
 - 16:15 to 16:45
- Key Findings
 - Significant queuing from downstream congestion (Straiton) causes queues to extend back to proposed Sheriffhall Rbt
 - Leading to queues on approach roads.
 - Buses are held back beyond the limit of the bus lane

Public Transport - Bus Routes and Journey Times

A720 Paramics: Buses Only (Lane 2), PM Peak Period



Modelling of Bus Lanes on A7(N) and A6106(S) in Lane 2

- PM Peak Period
 - Peak 30 mins
 - 16:15 to 16:45
- Downstream congestion
- Queue on Circulatory Carriageway
- Queues on Approaches
- Reduced stop line capacity
- Impact of imbalanced traffic demand on approach lanes
- Buses held back beyond bus lane

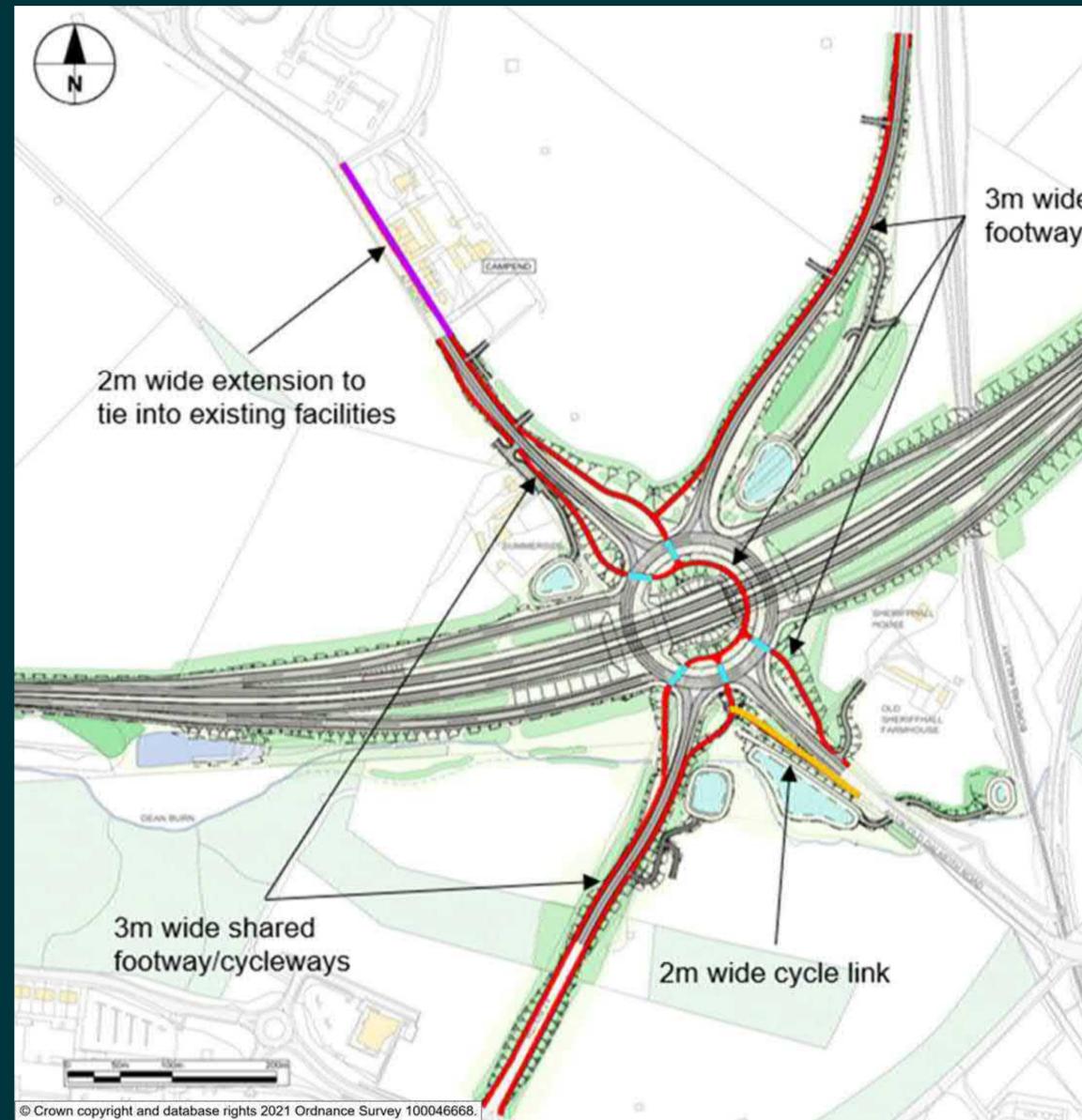
Active Travel Benefits

Active Travel Benefits

The proposed Scheme will provide high quality active travel facilities to deliver a step change in accessibility for walking and cycling.

The Scheme provides new dedicated fully grade-separated active travel routes across the junction for all approach roads, including:

- Nearly 2 miles of segregated shared surface for pedestrians and cyclists, connecting to AT facilities on all side roads
- Five dedicated grade separated AT subways under the new roundabout and A720
- High quality signage and lighting throughout the dedicated AT route network to encourage usage.

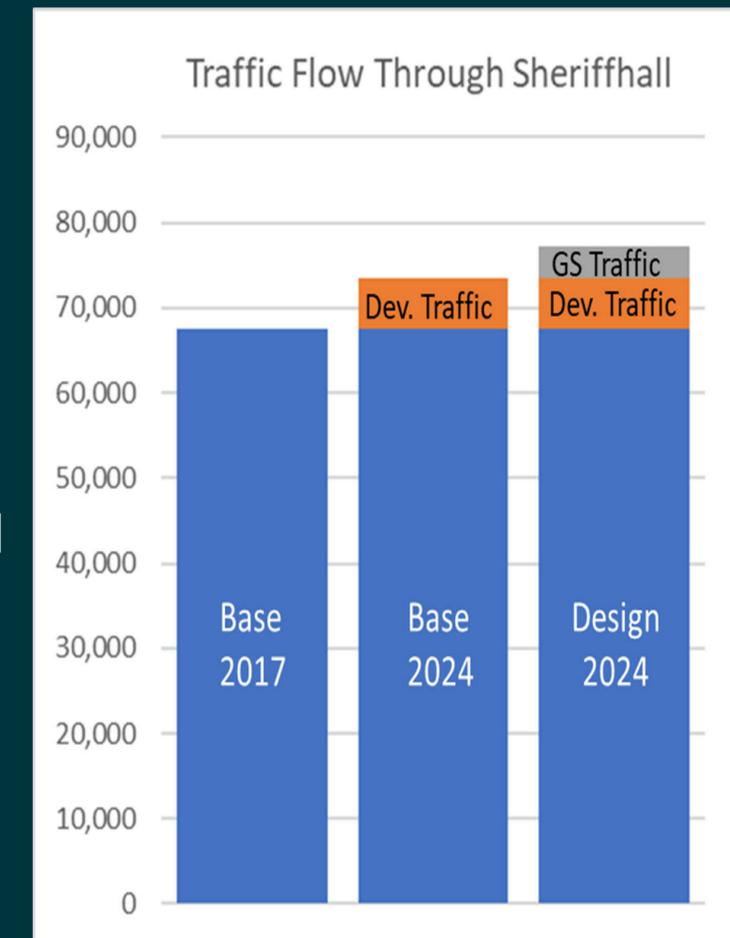


Summary and Conclusions

Summary and Conclusions

Traffic Modelling for A720 Sheriffhall Roundabout Scheme

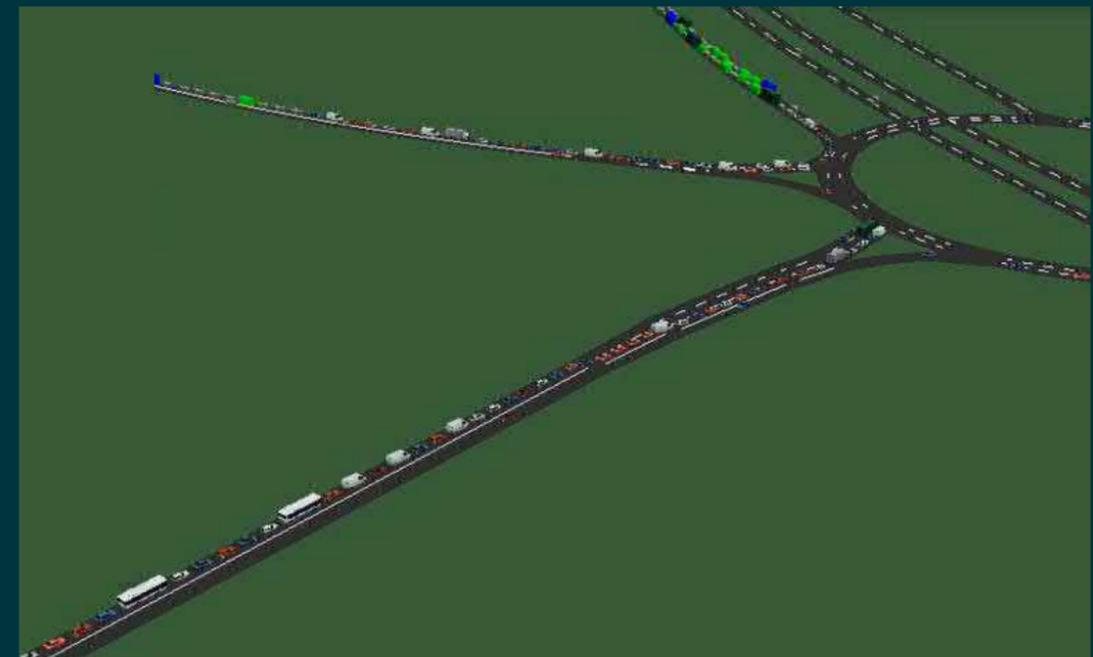
- Extensive traffic surveys were undertaken in 2017 to define baseline conditions in the area.
- The SEStran Regional Model (SRM12) was used to define traffic growth beyond 2017 and to provide information on traffic reassignment from the wider area for the Paramics simulation model.
- Computer simulations were created to model existing and future conditions at Sheriffhall.
- Traffic growth between 2017 and 2024, the proposed year of opening used for the assessment, is based on the full development planning data included in the SRM12.
- In the Base scenario, it is estimated that the 14-hour weekday flow through Sheriffhall Roundabout could increase by 6,040 (9%) vehicles from 67,530 in 2017 to 73,570 in 2024.
- In the Design scenario, it is estimated that the 14-hour weekday flow through Sheriffhall Roundabout could increase by a further 3,760 (5%) vehicles to 77,270, including the effects of additional traffic reassigned through the junction due to grade-separation.
- The additional 3,760 vehicles include 100% of the additional traffic predicted by SRM12 during the inter-peak period but only 25% of the additional traffic predicted by SRM12 for the heavily trafficked AM and PM peak periods due to the level of congestion on the network at these times.
- Of the 77,270 vehicles at Sheriffhall Roundabout in 2024, 37,340 (48%) would pass through the junction on the elevated A720 mainline, significantly reducing the conflict between strategic and local traffic movements.



Summary and Conclusions

Traffic Modelling for A720 Sheriffhall Roundabout Scheme

- Overall the proposed Scheme is expected to reduce journey times and improve journey time reliability for A720 , A7 and A6106 traffic.
- The results from the 2024 simulation models for the 14-Hour average weekday period indicate that:
 - Journey times on the A720 would reduce by 4 minutes
 - Journey times on the A7 would reduce by 2 to 3 minutes
 - Journey times on the A6106 would reduce by up to 7 minutes.
- Downstream congestion to the west of Sheriffhall, for example at Straiton, is expected to adversely affect the operational performance of the proposed Scheme during periods of peak traffic demand when queues could extend back to the circulatory carriageway of the new grade-separated junction. The models indicate this could occur in the PM peak period in 2024.
- When there is no congestion on the proposed circulatory carriageway, there is no significant queuing on the approach roads and consequently the provision of bus only lanes would not offer additional operational benefits.
- When congestion occurs on the proposed circulatory carriageway, the reduced entry capacity for general traffic due to the provision of bus only lanes could result in buses that are queued beyond the limits of the bus lane experiencing additional delays.

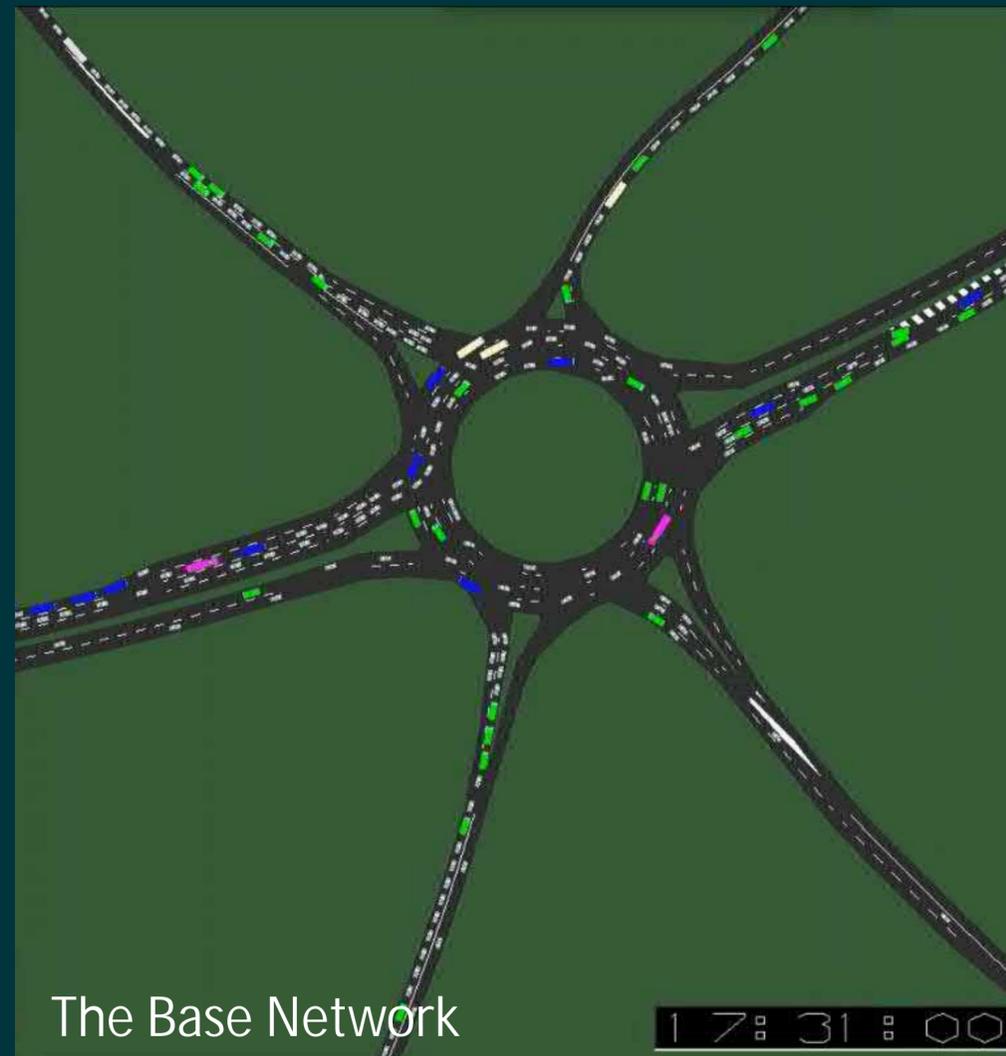


Summary and Conclusions

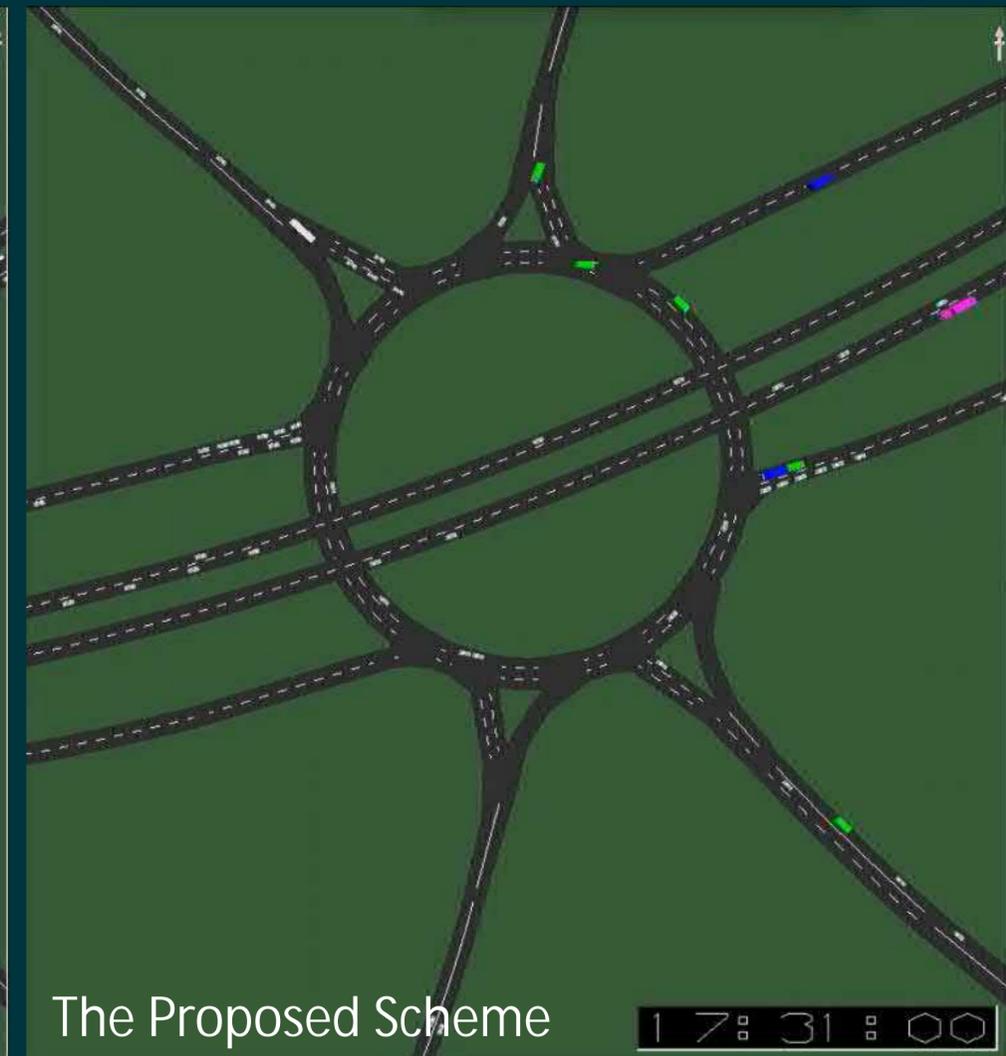
Traffic Modelling for A720 Sheriffhall Roundabout Scheme

The proposed Scheme is expected to deliver significant benefits to local traffic (including bus services) due to the improved traffic conditions on local roads resulting from the separation between strategic and local traffic.

The proposed Scheme provides new high quality grade-separated active travel routes across the junction for all approach roads that connect with the wider network to deliver a step change in accessibility for walking and cycling.



The Base Network



The Proposed Scheme

Next Steps and Programme

Next Steps and Programme

NEXT STEPS

- Transport Scotland will continue to progress work to look at the wider benefits of the scheme.
- Transport Scotland will write to Partners to clarify what the scheme delivers.
- Partners will write to Transport Scotland and confirm that this resolves the concerns raised in their draft Order representations and any subsequent dialogue.
- Transport Scotland will continue to respond to representations made to the draft Orders and Environmental Statement.

PROGRAMME

- Public Local Inquiry - early 2022
- Ministerial Decision - late 2022
- Tender Period commencing - Spring/Summer 2024
- Contract Awarded - Spring 2025
- Construction Commences - Summer 2025
- Scheme Open - late 2027



Thank You

AECOM Delivering a
better world

**PT & AT Technical Workshop - Response to CEC Feedback – Transport
Scotland to CEC - dated 5 October 2020**

[redacted]

[redacted]

Your ref:

Our ref:
A720/CEC

Date:
05 October 2020

Dear Sirs,

**A720 Sheriffhall Roundabout
Public Transport & Active Travel Technical Workshop Response**

[redacted]

As presented and discussed at the workshop, several bus priority measures have been identified and assessed as part of the review with most discounted due to negligible benefits to bus operation, increased impacts on general traffic flow and/or deliverability issues. It was set out at the workshop that any benefits associated with the provision of long bus lanes or active signal priority are also considered to be marginal when compared to those the Proposed Scheme already offers, as it is expected to deliver already significant journey time savings for local traffic (including bus services) due to the improved traffic conditions on local roads resulting from the separation between strategic and local traffic. We believe that the current proposals also provide the correct balance between improved bus services and accessibility for car users to the Sheriffhall Park and Ride facility.

[redacted]

Road Network

1. CEC request an opportunity to review in some detail the traffic modelling with the appropriate members of the project team. Please send contact details of relevant attendees and CEC will subsequently arrange.

Please direct queries through the AECOM Project Manager, Jill Irving jill.irving@aecom.com

2. Please confirm if a PC MOVA-Paramics link model has been used at any stage?

PC MOVA has not been used. The Proposed Scheme only has traffic signals at the A720 off-slip entries to the roundabout which, for the purpose of the operational assessment, have been modelled with a fixed cycle and can accommodate the predicted demand.

3. Furthermore, has calculated growth beyond 2024 (up to 2039) been modelled? We would welcome sight of the modelling report to examine these results in more detail.

Information from the SEStran Regional Model (SRM12) and the Transport Model for Scotland (TMfS14) was used to define future traffic levels within the modelled area. TMfS14 growth rates were used to derive an overall growth factor of 17.5% between 2024 and 2039.

However, the level of variation in the results from the model beyond 2024 for the Proposed Scheme, including additional traffic that would be attracted to the junction due to the effects of grade-separation, indicates that growth beyond 2024 cannot be modelled with acceptable statistical reliability due to the level of congestion on the road network.

The results of the assessment are presented in the Stage 3 Scheme Assessment Report. See following link for reference:

<https://www.transport.gov.scot/publication/dmrb-stage-3-assessment-report-a720-sheriffhall-roundabout/>

Further details on TMfS14 are available here:

<https://www.transport.gov.scot/our-approach/industry-guidance/land-use-and-transport-integrations-in-scotland-latis/#42984>

4. Can you please clarify anticipated traffic growth occurring as a result of suppressed demand? Please provide the modelling report to examine the results in more detail.

It is estimated that the annual average weekday traffic (AAWDT) flow through Sheriffhall Roundabout in 2017 was 67,530 vehicles. It is predicted that without intervention, the AAWDT flow could increase by 9% to 73,570 vehicles by 2024.

The provision of grade-separation at Sheriffhall Roundabout is considered to increase traffic flows through the junction by a further 5% to 77,270 vehicles in 2024. However, the provision of the grade-separated junction would allow strategic traffic (48% of the traffic) to pass over the new junction on an elevated structure.

5. Has there been any reference to capacity modelling?

In the case of the A720 Sheriffhall Roundabout, the operational assessment has involved the development of a Paramics micro-simulation traffic model to examine the likely effects of high traffic demand in a congested network and the interaction with adjacent junctions.

6. Please supply the exact development quantum's etc used in the model.

In addition to the Paramics models, which were developed specifically to assess the effects of the Proposed Scheme, information from the SEStran Regional Model (SRM12) was used to define future traffic levels within the modelled area.

The SRM12 model covers the South East Scotland area and was used to derive an estimate of future growth based on the traffic related effects of proposed changes in land use over both the local and the wider regional area.

Although AECOM was not involved in the development of the SRM12 model, the modelling scenarios were developed to inform the SESplan Strategic Development Plan (SDP) Cross Boundary Study (CBS). The SRM12 2024 Reference Case scenario reflected the delivery of the CBS 'committed' development proposals and includes a range of transport infrastructure and policy assumptions.

7. Has the performance of bus services through the junction for each option presented at the workshop been modelled in anyway? And if so, can you please provide details of the work undertaken.

As detailed during the workshop, several bus priority options (1, 2, 3 and 5) were discounted due to negligible benefits to buses, impacts on general traffic, conflicting movements between traffic entering and exiting the roundabout, and deliverability issues. Therefore, these options have not been modelled.

The provision of full signalisation is not considered to offer any additional benefits to the operation of the junction in the proposed year of opening and would introduce additional delays to all road traffic. At this stage, full signalisation of the junction has not been modelled.

8. Has modelling been undertaken accounting for a much increased number of new bus services through the junction, please supply details of the work undertaken.

A programme of data collection surveys was undertaken in May 2017 to assist in establishing baseline traffic volumes and vehicle proportions at key locations. The surveys included manual classified counts of all vehicles including buses.

The baseline traffic volumes, including buses, were increased using the growth factors derived from SRM12. To date we have not received any details of committed increases in buses services through the junction.

As noted in response to point 11 below, bus companies operating in the area of the scheme (Lothian Buses, Borders Buses and Lothian Community Transport Services) have been

contacted to provide comments on the public transport review and identify any potential new bus services which could be introduced.

[redacted]

**CEC Letter - Update response by CEC to A720 Sheriffhall Grade Separation
Scheme dated 07 December 2020**

Appendix 1

Updated Response by the City of Edinburgh Council (CEC) to A720 SHERIFFHALL GRADE SEPERATION SCHEME

Road Network

Ref No	CEC Query 21 August 2020	TS Response 05 October 2020	Updated CEC Response 07 December 2020	Action
1	CEC request an opportunity to review in some detail the traffic modelling with the appropriate members of the project team. Please send contact details of relevant attendees and CEC will subsequently arrange.	Please direct queries through the AECOM Project Manager, Jill Irving jill.irving@aecom.com	We welcome an opportunity to review in some detail traffic modelling, assumptions, outputs and analysis with you. Please can Aecom send CEC some suggested dates for a meeting.	Aecom to send CEC suggested dates for meeting.
2	Please confirm if a PC MOVA-Paramics link model has been used at any stage?	PC MOVA has not been used. The Proposed Scheme only has traffic signals at the A720 off-slip entries to the roundabout which, for the purpose of the operational assessment, have been modelled with a fixed cycle and can accommodate the predicted demand.	Please see response to Question 3.	Please see Action 3.
3	Has calculated growth beyond 2024 (up to 2039) been modelled? We would welcome sight of the modelling report to examine these results in more detail.	Information from the SEStran Regional Model (SRM12) and the Transport Model for Scotland (TMfS14) was used to define future traffic levels within the modelled area. TMfS14 growth rates were used to derive an overall growth factor of 17.5% between 2024 and 2039. However, the level of variation in the results from the model beyond 2024 for the Proposed Scheme, including additional traffic that would be attracted to the junction due to the effects of grade-separation, indicates that growth beyond 2024 cannot be	Current modelling outputs forecast conditions for years up to 2024 and not beyond. However, now that the anticipated year of opening has been slipped to no earlier than 2027, we suggest that the modelling is updated which aligns to the new date of opening. In addition, the modelling should include the signalised options and be undertaken using PC MOVA-Paramics, to ensure that public transport priority through the junction is protected in future years.	Update the current modelling horizon year of 2024 to reflect the new anticipated opening year of 2027. Modelling to include signalised options and be undertaken using PC MOVA-Paramics.

Ref No	CEC Query 21 August 2020	TS Response 05 October 2020	Updated CEC Response 07 December 2020	Action
		<p>modelled with acceptable statistical reliability due to the level of congestion on the road network.</p> <p>The results of the assessment are presented in the Stage 3 Scheme Assessment Report.</p> <p>The results of the assessment are presented in the Stage 3 Scheme Assessment Report. See following link for reference:</p> <p>https://www.transport.gov.scot/publication/dmrb-stage-3-assessment-report-a720-sheriffhall-roundabout/</p> <p>Further details on TMfS14 are available here:</p> <p>https://www.transport.gov.scot/our-approach/industry-guidance/land-use-and-transport-integrations-in-scotland-latis/#42984</p>	<p>We have previously requested the modelling report, but this has not yet been forthcoming.</p>	<p>TS to provide modelling report.</p>
4	<p>Can you please clarify anticipated traffic growth occurring as a result of suppressed demand? Please provide the modelling report to examine the results in more detail.</p>	<p>It is estimated that the annual average weekday traffic (AAWDT) flow through Sheriffhall Roundabout in 2017 was 67,530 vehicles. It is predicted that without intervention, the AAWDT flow could increase by 9% to 73,570 vehicles by 2024.</p> <p>The provision of grade-separation at Sheriffhall Roundabout is considered to increase traffic flows through the junction by a further 5% to 77,270 vehicles in 2024. However, the provision of the grade-separated junction would allow strategic traffic (48% of the traffic) to pass over the new junction on an elevated structure.</p>	<p>TS has provided a summary of the estimated AAWDT through the Sherriffhall roundabout and has stated that the provision of the grade-separated junction would increase flows by 5% to 77,270 vehicles in 2024.</p> <p>However, the derivation of these figures is unclear. A copy of the modelling report would hopefully provide clarification on such matters and satisfy the level of detail being sought by CEC.</p> <p>Furthermore, the modelling should now be updated to at least 2027.</p>	<p>TS to provide modelling report.</p>
5	<p>Has there been any reference to capacity modelling?</p>	<p>In the case of the A720 Sheriffhall Roundabout, the operational assessment has involved the development of a Paramics micro-simulation traffic model to examine the likely effects of high traffic demand in a congested network and the interaction with adjacent junctions.</p>	<p>This does not fully answer the question, but the modelling report should provide clarity.</p>	<p>TS to provide modelling report.</p>
6	<p>Please supply the exact development</p>	<p>In addition to the Paramics models, which were developed specifically to assess the effects of the Proposed Scheme,</p>	<p>We understand that information from the SEStran Regional Model (SRM12) was used to define future traffic levels within the</p>	<p>TS to provide information of the quantum used in the</p>

Ref No	CEC Query 21 August 2020	TS Response 05 October 2020	Updated CEC Response 07 December 2020	Action
	<p>quantum's etc used in the model.</p>	<p>information from the SEStran Regional Model (SRM12) was used to define future traffic levels within the modelled area.</p> <p>The SRM12 model covers the South East Scotland area and was used to derive an estimate of future growth based on the traffic related effects of proposed changes in land use over both the local and the wider regional area.</p> <p>Although AECOM was not involved in the development of the SRM12 model, the modelling scenarios were developed to inform the SESplan Strategic Development Plan (SDP) Cross Boundary Study (CBS). The SRM12 2024 Reference Case scenario reflected the delivery of the CBS 'committed' development proposals and includes a range of transport infrastructure and policy assumptions.</p>	<p>modelled area, however we would like to see more information of the exact quantum included.</p>	<p>SEStran Regional Model (SRM12).</p>
7	<p>Has the performance of bus services through the junction for each option presented at the workshop been modelled in anyway? And if so, can you please provide details of the work undertaken.</p>	<p>As detailed during the workshop, several bus priority options (1, 2, 3 and 5) were discounted due to negligible benefits to buses, impacts on general traffic, conflicting movements between traffic entering and exiting the roundabout, and deliverability issues. Therefore, these options have not been modelled. The provision of full signalisation is not considered to offer any additional benefits to the operation of the junction in the proposed year of opening and would introduce additional delays to all road traffic. At this stage, full signalisation of the junction has not been modelled.</p>	<p>Several options have been discounted due to negligible benefits to buses, however, modelling of the options has not been undertaken which would evidence this. It has been stated that full signalisation of the junction is not considered to offer any additional benefits in the proposed opening year, however, benefits in future years has not been considered, when growth is realised and conditions at the junction for all traffic worsens. TS should model all the proposed options and ensure that public transport priority through the junction is protected.</p> <p>Although other discounted options prioritising public transport may introduce delays to certain road traffic movements, we perceive a negligible benefit to buses as a statement in principle to be better than no benefit. As mentioned above, public transport measures from the onset should be prioritised, to protect against worsening conditions for public transport as future traffic grows year on year.</p>	<p>TS to model all the proposed options, and reconsider introducing bus priority from the outset to future proof the scheme.</p>

Ref No	CEC Query 21 August 2020	TS Response 05 October 2020	Updated CEC Response 07 December 2020	Action
			Furthermore, omission of bus priority from the outset is contrary national, regional and local level policy objectives and outcomes. When referring to the mode hierarchy and aligning with national and local policy, public transport should be prioritised before traffic, regardless of the negligible benefits to bus. General traffic and public transport should not be considered on equal grounds in this circumstance.	
8	Has modelling been undertaken accounting for a much increased number of new bus services through the junction, please supply details of the work undertaken.	A programme of data collection surveys was undertaken in May 2017 to assist in establishing baseline traffic volumes and vehicle proportions at key locations. The surveys included manual classified counts of all vehicles including buses. The baseline traffic volumes, including buses, were increased using the growth factors derived from SRM12. To date we have not received any details of committed increases in buses services through the junction. As noted in response to point 11 below, bus companies operating in the area of the scheme (Lothian Buses, Borders Buses and Lothian Community Transport Services) have been contacted to provide comments on the public transport review and identify any potential new bus services which could be introduced	Please see response to Question 11.	Please see Action 11.

[Redacted]

Public Transport in the Short Term

Ref No	CEC Query 21 August 2020	TS Response 05 October 2020	Updated CEC Response 07 December 2020	Action
11	[redacted]	[redacted].	Thank you for confirming that that the outcomes of the consultation will be shared and for offering a follow up discussion. Please can TS arrange a session with CEC and the bus operators once the consultation is complete.	TS to send outcome of consultation to CEC. TS to arrange a session with CEC and bus operators once the consultation is complete.

Annex D - Sheriffhall Wider Impacts Paper dated 01 November 2021

Appendix A: Proposed Scheme Alignment with NTS2 Priorities and Outcomes

Scores presented in Appendix A are based on a similar seven-point scale to that used within Scottish Transport Appraisal Guidance (STAG)²³. In STAG the scale is used to test eligibility for funding. However, as the Scottish Government is already committed to funding the proposed Scheme, the scale has been modified as set out below to indicate how the proposed Scheme contributes to NTS2 Priorities and Outcomes in more general terms.

- Major benefit – anticipated to have major benefits or positive impacts that align with NTS2 Priorities and Outcomes.
- Moderate benefit – anticipated to have moderate benefits or positive impacts that align with NTS2 Priorities and Outcomes.
- Minor benefit – anticipated to have only minor benefits or positive impacts that align with NTS2 Priorities and Outcomes.
- No benefit or impact – anticipated to have no or negligible benefit or impact on NTS2 Priorities and Outcomes.
- Minor negative impact – anticipated to have only minor negative impacts that do not align with NTS2 Priorities and Outcomes.
- Moderate negative impact – anticipated to have moderate negative impacts that do not align with NTS2 Priorities and Outcomes.
- Major negative impacts – anticipated to have major negative impacts that do not align with NTS2 Priorities and Outcomes.

²³ <https://www.transport.gov.scot/media/41519/j358676-05.pdf>

NTS2 Priority / Outcome	Scoring	Comments / Explanation for Scoring
Reduces inequalities		
<i>Will provide fair access to services we need</i>	Minor Benefit	<p>By removing the barrier created by the congested roundabout, enhanced active travel provision and improved integration of public transport (including Sheriffhall Park & Ride) the proposed Scheme will help to improve access to services, including healthcare, employment, education and training in Edinburgh and the wider local area by a number of transport modes.</p> <p>The proposed Scheme will improve journey times and reduce journey time variability for bus services accessing the major hospitals in the region, including the Royal Infirmary of Edinburgh and the Royal Hospital for Sick Children. The active travel elements of the proposed Scheme will also improve access to local healthcare services in Dalkeith, along the A772 Gilmerton Road corridor and to the north of Sheriffhall and will provide linkages to public transport services for sustainable access to healthcare facilities in the wider area.</p> <p>The proposed Scheme will provide access to a number of growth areas and will support forecast employment growth within the City of Edinburgh, East Lothian, Midlothian, West Lothian and Fife and will help to strengthen economic participation and enhance skills. The proposed Scheme will also improve access from large areas of new housing proposed in East Lothian, West Lothian and Midlothian, where there are greater barriers for all trips to be made by public transport and active travel modes alone.</p>
<i>Will be easy to use for all</i>	Major Benefit	<p>The proposed Scheme will reduce barriers to transport through the provision of a grade-separated roundabout, which will benefit all users. The proposed active travel layout has been developed to provide low-level grade-separated active travel links across the Sheriffhall Roundabout, thus making it easier for pedestrians and cyclist to traverse. Signage and lighting will be provided throughout the dedicated active travel route network. The proposed Scheme has been designed to include active travel routes developed in accordance with the process described in the DMRB HD 42/17 'Walking, Cycling & Horse-Riding Assessment and Review' and in accordance with Transport Scotland's 'Roads for All – Good Practice for Roads (2013)', DMRB TD36 'Subways for Pedestrians and Pedal Cyclists Layout and Dimensions' and DMRB TD90 'The Geometric Design of Pedestrian, Cycle and Equestrian Routes'.</p> <p>The Mobility and Access Committee for Scotland (MACS) / Edinburgh Access Panel was consulted with as part of DMRB Stage 3; the involvement of such groups is a key element of inclusive design.</p>
<i>Will be affordable for all</i>	Minor Benefit	<p>By enhancing active travel provision and improving public transport integration, the impact of the proposed Scheme could have a greater impact for lower income households in particular, reducing the need to run a private vehicle.</p> <p>The proposed Scheme will reduce journey times which will have a minor impact on reducing fuel costs for those living in rural areas, particularly those travelling to Sheriffhall Park and Ride for onward journeys.</p>
Takes climate action		
<i>Will help deliver our net-zero target</i>	Minor Negative Impact	<p>There will be an increase in GHG emissions during the construction of the proposed Scheme associated with embodied carbon in products and materials and fuel use for transport of materials and workers to site and that used by vehicles, plant and equipment onsite. This has been assessed as a minor adverse impact which is not considered significant in accordance with DMRB guidance on Climate assessments.</p>

NTS2 Priority / Outcome	Scoring	Comments / Explanation for Scoring
		<p>During operation the climate change assessment considers GHG emissions against the proposed Scheme not being implemented. It is estimated that there will be an initial increase in operational GHG emissions from 2024 (proposed year of opening) until 2038 due to reassigned traffic using the junction. Thereafter the annual GHG emissions are less compared to if no improvements were made. This is primarily due to a reduction in congestion allowing free flowing traffic and the reassignment of some traffic from other routes meaning vehicles are travelling less distances. The operational impact on climate change has also been assessed as minor adverse with a recognition that there is expected to be a beneficial impact in the longer term.</p> <p>Although not assessed as part of the EIA, the provision for active travel users will also encourage sustainable transport choices, and improved journey times and reduced journey time variability through Sheriffhall will make trips by bus more attractive.</p>
<i>Will adapt to the effects of climate change</i>	No Benefit or Impact	<p>A number of mitigation measures have been included within the proposed Scheme design in order to account for future changes in climate including higher temperatures and increased frequency of adverse weather events. These include the use of construction materials with superior properties (such as increased tolerance to fluctuating temperatures); consideration of climate change projections within maintenance plans and drainage systems; inclusion of flood compensation areas to account for climate change; and the application of engineering design standards for safety of road users and structural stability.</p> <p>A Flood Risk Assessment (FRA) was undertaken as part of the EIA process. The FRA identified that, though the Dean Burn and the pond at Lugton Bogs have a medium (1-in-200 year storm) to high (1-in-10 year storm) likelihood of flooding adjacent areas under the existing layout, the A7 and A6106 carriageways were shown to not be at risk during a 1-in-200 year plus climate change event. Hydraulic modelling of the proposed Scheme indicated that compensatory flood storage would be required to mitigate against a potential negative impact on flood risk (increased flows downstream). With mitigation measures in place the proposed Scheme is seen to provide a neutral impact within the model. The flood compensatory storage has been designed to accommodate a 1-in-200 year storm plus climate change flow. The design of the proposed Scheme has recognised the influence of future climate change and, as such, a 21% uplift to flow has been adopted for the flood risk study in line with SEPA's Technical Flood Guidance.</p> <p>Overall, the proposed Scheme is expected to have no benefit or impact on adapting to the effects of climate change.</p>
<i>Will enable greener, cleaner choices</i>	Moderate Benefit	<p>Improved active travel provision will facilitate access to significant areas of green and blue space within the region such as Dalkeith Country Park. An EIA has been undertaken and a range of measures has been incorporated into the design of the proposed Scheme to prevent, reduce or offset significant adverse environmental effects. The EIA has found that the proposed mitigation measures reduce the impact of the proposed Scheme leading to no significant residual adverse impacts on the natural environment or access to nature.</p> <p>Improvements to general traffic flow and journey times resulting from improvements at Sheriffhall Roundabout will benefit bus service journey times and reduce journey time variability, making bus a more attractive mode of transport than at present and providing opportunities for operators to plan for improved services. The provision of a grade-separated roundabout will remove the barrier created by the congested roundabout and help to improve access and encourage trips by walking and cycling to access local services and destinations. Sheriffhall has been identified as one of the key missing links on the</p>

NTS2 Priority / Outcome	Scoring	Comments / Explanation for Scoring
		<p>Strategic Cycle Network. Active travel proposals have been developed extensively in conjunction with local stakeholders to provide a proposed Scheme which is considered will encourage a greater number of trips undertaken by active travel for shorter everyday journeys, for example to local amenities including in Dalkeith, on the A772 Gilmerton Road corridor, and connection to proposed development to the north of Sheriffhall Roundabout. Enhanced active travel provision will also improve integration with public transport and the adjacent Sheriffhall P&R site by removing the barrier created by the congested at-grade roundabout.</p> <p>Overall the proposed Scheme is considered to have a moderate benefit in terms of enabling greener, cleaner choices.</p>
Helps deliver inclusive economic growth		
<i>Will get people and goods where they need to get to</i>	Moderate Benefit	<p>The proposed Scheme will improve the movement of traffic by providing grade-separation of the A720 at the existing Sheriffhall Roundabout. It will offer improved connectivity and support access to a number of growth areas within the vicinity of Sheriffhall Roundabout. In addition, the proposed Scheme will improve access from the east of Edinburgh City to the growth areas around the West of Edinburgh and the M8 Corridor, and to growth areas to the north and east. It will support access to large areas of new housing proposed in East Lothian, West Lothian and Midlothian. Whilst the proposed Scheme takes cognisance of the Midlothian, City of Edinburgh and East Lothian Local Development Plans, it does not reduce the demand for unsustainable travel.</p> <p>The proposed Scheme will improve journey times and resilience of access to the main gateways including, for example, Edinburgh Airport and Shawfair rail station (which provides connections to stations on the Borders Railway between Edinburgh city centre and Tweedbank) and will also improve connectivity within the region and to the wider transport network. Improved connectivity and journey times will help to support investment in new and existing markets and the competitiveness of businesses in the region and make the region more attractive to live, study, visit and invest in. The improved journey times and reduced journey time variability will also improve the efficiency of freight movements on the A720 between Gilmerton and Old Craighall.</p> <p>Improved connectivity and journey times will help to support investment in new and existing markets and will help to improve the competitiveness of businesses in the region.</p>
<i>Will be reliable, efficient and high quality</i>	Moderate Benefit	<p>The removal of route severance for all users through grade-separation will improve the efficiency and flow of motorised and non-motorised traffic on the network. This will also reduce journey time variability and improve journey time reliability for all users. The improved journey times and reduced journey time variability will also improve the efficiency of freight movements on the A720 between Gilmerton and Old Craighall.</p> <p>The proposed Scheme will reduce the conflict between traffic movements by removing the at-grade junction. This will improve safety at Sheriffhall and will reduce disruption caused by accidents and associated lane closures. Reduced collisions as a result of road safety improvements brought about by implementation of the proposed Scheme is expected to result in fewer closures which in turn will improve the reliability, efficiency and resilience of the network.</p>
<i>Will use beneficial innovation</i>	No Benefit or Impact	<p>The proposed Scheme will provide an opportunity to monitor and evaluate uptake of active modes as a result of active travel facilities being delivered in parallel to major road infrastructure. It is anticipated that behaviour change and promotion activities will take place alongside delivery of the new facilities, to encourage use. The two main A720 bridge structures have been designed to accommodate up to a 3.3m</p>

NTS2 Priority / Outcome	Scoring	Comments / Explanation for Scoring
		wide carriageway (i.e. for a hard shoulder or third lane / bus lane) which could help provide for any future plans for Bus Orbital / bus lanes on the A720. Intelligent Transport System (ITS) provision shall also be made as part of the proposed Scheme, including CCTV and inductive loops in each approach road to the roundabout, which will be used to provide traffic count data. A review of existing Variable Message Sign (VMS) provision undertaken as part of the DMRB Stage 3 process concluded that drivers are given an adequate supply of information on the M8, A720, A68 and A1, therefore no further VMS is proposed within the extents of the proposed Scheme.
Improves our health and wellbeing		
<i>Will be safe and secure for all</i>	Major Benefit	<p>The proposed Scheme is forecast to reduce the number of personal injury accidents on the modelled network by 127 accidents over the 60-year assessment using standard default accident rates. The proposed Scheme will reduce the conflict between traffic movements through the implementation of a grade-separated junction, with segregated routes for active travel users. This will result in the potential to reduce accident rates and severity for all users.</p> <p>The proposed Scheme will enhance security for active travel users through the provision of segregated routes with enhanced lighting and CCTV provision. This will assist in addressing the personal security concerns of many individuals.</p>
<i>Will enable us to make healthy travel choices</i>	Moderate Benefit	<p>The proposed Scheme will facilitate active travel opportunities, supporting improved health and wellbeing. The active travel routes linked to the proposed Scheme have been developed in line with the process described in DMRB HD 42/17 'Walking, Cycling & Horse-Riding Assessment and Review', and in accordance with the current design standards and industry best practice. This process is designed to facilitate the inclusion of all walking, cycling, wheeling and horse riding modes in the highway scheme design by reviewing existing provision and identifying potential opportunities for improvements and integration. The proposed active travel layout has been developed to provide low-level grade-separated active travel links across the Sheriffhall Roundabout with five subways connecting to off-carriageway, 3m wide shared pedestrian / cycle routes on the A7 North, A7 South, A6106 Millerhill Road and A6106 Old Dalkeith Road. Where active travel routes run adjacent to the carriageway, shared facilities will be provided within the road verge and offset from the running edge of the carriageway, as appropriate to the speed limit of the adjacent carriageway. Signage and lighting will be provided throughout the dedicated active travel route network. With the aspiration to provide exemplar active travel facilities as part of the proposed Scheme, the standards for long-distance / commuter routes have been adopted where possible. These measures will facilitate active travel choices to improve people's mental and physical health and wellbeing and will help people to make healthy travel choices.</p>
<i>Will help make our communities great places to live</i>	Moderate Benefit	<p>Stakeholder engagement has played a key role in the development of the proposed Scheme to date and will continue to do so as the proposed Scheme progresses. This supports a collaborative approach to planning and is in line with the Place Principle²⁴. The proposed Scheme is expected to support wider place-making measures by re-distributing traffic from local roads onto the strategic road network and thereby facilitating place-based improvements to local roads and the communities they pass through.</p> <p>The proposed active travel provision will also improve access to local amenities including Sheriffhall Park & Ride, and facilities in Dalkeith and on the A772 Gilmerton Road corridor and will enhance connections to proposed development to the north of Sheriffhall Roundabout. Removal of traffic conflict will create a more attractive network for all users.</p>

²⁴ The Place Principle promotes a shared understanding of place, and the need to take a more collaborative approach to a place's services and assets to achieve better outcomes for people and communities. The principle encourages and enables local flexibility to respond to issues and circumstances in different places. Further details are available at <https://www.gov.scot/publications/place-principle-introduction/>