

## Cycle Superhighway Number 3 (East West Cycle Superhighway): Comments on revised proposals supplied by Transport for London

This document sets out further comments and concerns, which need to be addressed following an evaluation of the proposals as summarised in this document.

### 1 Introduction

- 1.1 The purpose of this technical note is to provide a briefing on the revised TfL scheme design and modelling for the East West Cycle Superhighway (EWCS) to be known as Cycle Superhighway Number 3.
- 1.2 Following consultation in September, the TfL Board agreed that the Tower Hill - Paddington section of the East-West Cycle Superhighway should progress to construction, although with some changes to the proposals set out for consultation. These include:
  - Changes to reduce the journey time impacts of the proposals, which retain the proposed segregated route for cyclists, but also provide two westbound traffic lanes between Tower Hill and Northumberland Avenue. Space is created in various ways, including some reductions in footways, cycle track and traffic island widths;
  - Lifting some of the previously-proposed traffic restrictions at Fish Street Hill, Horse Guards Road and Storey's Gate, with potentially a new signalised junction at Horse Guards Road / Storey's Gate (subject to further consultation);
  - New banned turns at Northumberland Avenue and Storey's Gate (subject to further consultation);
  - More loading, disabled and motorcycle parking on Victoria Embankment and more time allowed for loading (subject to local consultation)
  - New design at Lancaster Gate with a more direct route for southbound cyclists that avoids Stanhope Terrace and Brook Street (subject to further consultation);
  - Revised design at the junction of Victoria Embankment/ Westminster Bridge that runs vehicular traffic together with non-conflicting cyclists, which has less of an impact on traffic capacity than the initial scheme;
  - Revised design at the junction of Parliament Street/ Parliament Square that removes the proposal for a segregated cycle facility in favour of a simpler advanced cycle stop line (ASL), which has less of an impact on traffic capacity than the initial scheme.

- 1.3 Westminster City Council (WCC) and its consultants, FM Conway Limited, WSP and Jacobs, were provided with a brief opportunity in mid-January 2015 to comment on design changes for Victoria Embankment/ Northumberland Avenue and Lancaster Gate ahead of the further consultation now in progress, and also provided comments on consultation material for The Royal Parks, and reviewed arrangements for Savoy Hill/ Savoy Street. However, traffic signal method of control and traffic modelling information was not included in the draft consultation material, and so a detailed review was not possible at that time.
- 1.4 This note sets out a review of the revised proposals and traffic modelling for Lancaster Gate, yet as the revised modelling covers the entire EWCS corridor and affects or is affected by the local revisions, further review of the wider impact has been carried out. TfL also proposes alterations to the proposed method of control at the Victoria Embankment/ Westminster Bridge/ Bridge Street junction, and the Parliament Square/ Parliament Street junction. TfL is not carrying out consultation on these revisions, yet as they result in strategic impact in terms of the traffic modelling, these elements are also considered.

## 2 EWCS TfL Modelling Results Summary

- 2.1 As part of the February 2015 consultation, TfL released a revised Modelling Results summary on 24 February 2015 (see Appendix A1, September 2014 and Appendix A2, February 2015 results).
- 2.2 This sets out average journey times for four key sections of the EWCS route only (not London Boroughs' roads approaches to it), namely:
- Limehouse Link tunnel to Hyde Park Corner;
  - East Smithfield to St Margaret Street (Parliament Square exit)
  - Westminster Bridge to Hyde Park Corner (Knightsbridge)
  - Lancaster Gate to A40 Westway.
- 2.3 It also sets out bus journey times on four specific routes through the scheme, namely:
- Route 15 (between Tower Hill and Byward Street);
  - Route 453 (between Westminster Bridge and Trafalgar Square, via Parliament Square;
  - Route 16 (between Park Lane and Grosvenor Place);
  - Route 94 (between Marble Arch West and Lancaster Gate).

2.4 It also sets out cycling journey times on four specific sections, namely:

- Royal Mint Street to Hyde Park Corner;
- Royal Mint Street to St Margaret Street (Parliament Square exit);
- Parliament Square to Hyde Park Corner;
- Lancaster Gate to A40 Westway.

2.5 Finally, it sets out impact on pedestrian wait times at four locations, namely:

- Tower Hill - Minories - Shorter Street;
- Upper Thames Street - Queen Street - Queen Street Place;
- Parliament Square - Parliament Street - Bridge Street;
- Knightsbridge - Hyde Park Corner - Grosvenor Place.

2.6 It should be noted that the results include the effect of the wider traffic management strategy that is to be deployed to manage traffic demand entering the central London Boroughs, yet it does not allow for further possible traffic reduction as a consequence of demand management measures. A comparison between the February 2015 revised and September 2014 initial results shows the following.

2.7 The increase to journey times between Limehouse Link Tunnel and Hyde Park Corner are generally improved by up to 10 minutes in the westbound direction in both AM and PM peaks and made worse in the eastbound direction by over a minute in the PM peak. TfL has advised that the cause of the changes can be summarised by:

- An additional traffic lane at Tower Gateway has permitted significantly more vehicles to enter the scheme and therefore a substantial part of the westbound delay along the EWCS and Limehouse Link is significantly reduced;
- Changes at Lower Thames Street/ Fish Street Hill have assisted the operation of the City of London section;
- The additional crossing in the vicinity of Trinity Square and changes on the existing crossing at Tower Hill;
- The additional westbound lane between Puddle Dock and Temple Avenue is beneficial to westbound flows and journey times, but detrimental to eastbound flows and movements, particularly in the PM peak;
- The modifications at Temple Place and Northumberland Avenue (2 lanes westbound) have assisted the progression of vehicles further westwards;

- The modifications at Bridge Street and at Parliament Street have been introduced to operate the Parliament Square area more efficiently and as a consequence more traffic is able to progress through the Square.
- 2.8 In general, the revised results show a mixture of some journey times increasing and others decreasing when compared to the initial scheme. Of particular concern within Westminster are the predicted **further increases** of:
- over 3½ minutes westbound between East Smithfield to St Margaret Street in the AM peak
  - 2½ minutes westbound between Westminster Bridge and Hyde Park Corner
  - 2½ minutes southbound between A40 Westway to Lancaster Gate in the PM peak.
- 2.9 The bus journey time results generally show significant increases to bus journey times. Of particular concern within the City of Westminster are the routes on the short distance between Westminster Bridge and Trafalgar Square, which experience increases in the AM peak both northbound and southbound of between 5 to 10 minutes. Also, westbound on Bayswater Road increases by up to 5 minutes.
- 2.10 The average cycling journey times reported have not altered greatly when compared to the initial results. They tend to reduce when compared to base, yet the highest increase of 5 minutes is on the eastbound approach to Parliament Square.
- 2.11 The pedestrian wait times have not been changed from the initial proposals at the four sites identified above.

### 3 Westminster City Council Data Request

3.1 WCC requested additional material to assist with the review of the proposed revisions to the EWCS scheme. Although TfL was not in a position to issue the full range of material provided for the September 2014 consultation, TfL has provided:

- Output diagrams from the ONE strategic traffic model, indicating the expected changes in traffic flows as a consequence of the revised scheme against Base conditions, and also the expected changes when compared to the initial scheme proposals;
- Technical Note responding to specific data requests (see Appendix B - TfL Operational Modelling and Visualisation report issued to WCC on 19<sup>th</sup> March 2015) regarding:
  - Revised modelling methodology;
  - Revised general journey time change across Westminster
  - Revised bus journey time changes on Borough routes
  - Assessment of impact of prohibiting turns between Westminster Bridge and Victoria Embankment.
- Opportunity to view the VISSIM micro-simulation models for the EWCS route through Westminster, and a series of VISSIM model screenshots indicating queue lengths towards the end of the modelled peak (see Appendix C - EWCS VISSIM screenshots 12<sup>th</sup> March 2013);
- LinSig junction traffic models for Lancaster Gate, Parliament Square and Victoria Embankment;

3.2 Although formal consultation is only relevant for Victoria Embankment/ Northumberland Avenue and Lancaster Gate, these changes have an impact on the overall results of the scheme modelling and traffic reduction requirements. It is therefore pertinent to consider the wider, as well as the local, impacts within this review.

3.3 TfL has advised that further individual junction performance output information has not been undertaken to date. It was suggested by TfL that WCC might wish to undertake specific modelling using the TfL models provided. However, this has not been possible due to the limited time available. The network operation of the proposed revisions to the EWCS scheme has been assessed using VISSIM micro-simulation. Broad indications of locations where junctions are expected to be over-saturated are shown in the peak hour traffic flow difference plots from the ONE model.

#### 4 ONE model peak hour traffic flow differences

4.1 TfL has provided peak period traffic flow difference plots in City of Westminster, based on the ONE EWCS Final Model outputs. Figures 1 and 2 show the revised scheme traffic forecast scenarios versus the base traffic scenarios in the AM and PM peak periods. Figures 3 and 4 show the revised scheme traffic forecast scenarios versus the previous scheme forecast scenarios in the AM and PM peaks. Blue bars indicate a reduction in traffic flow, red bars show where there is expected to be an increase.

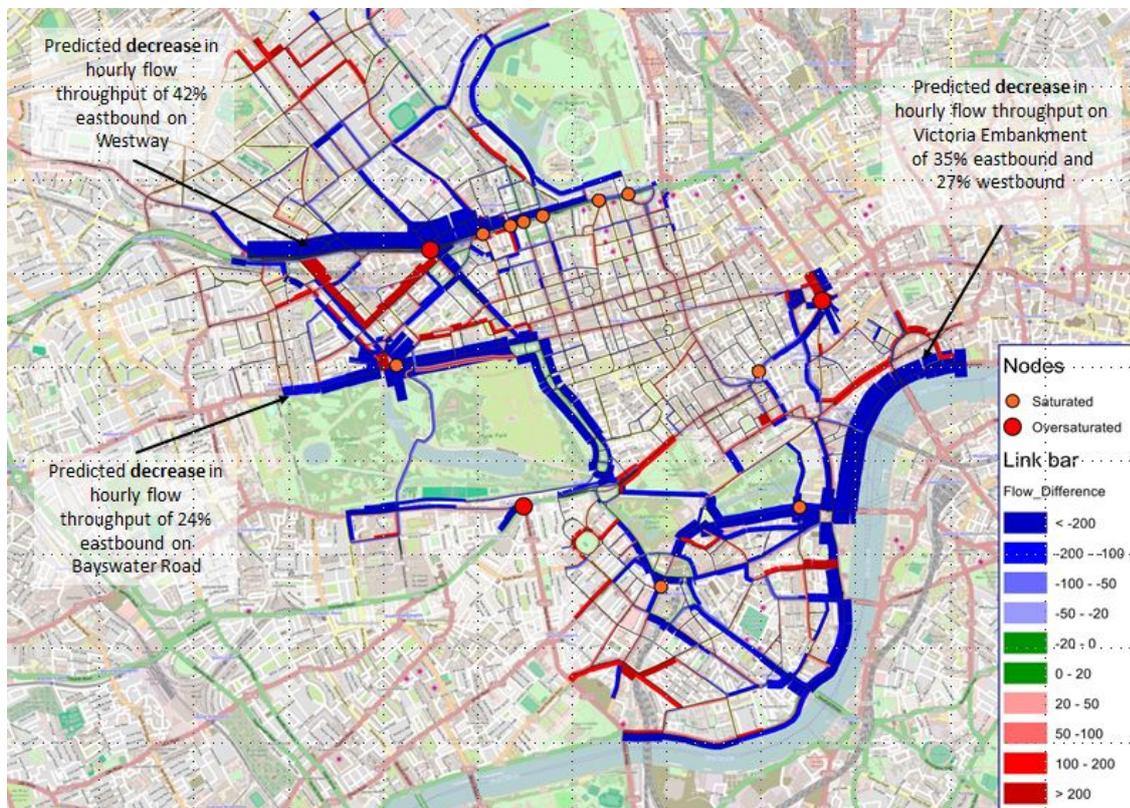


Figure 1: ONE Model revised scheme traffic forecast versus the base traffic scenario – AM Peak

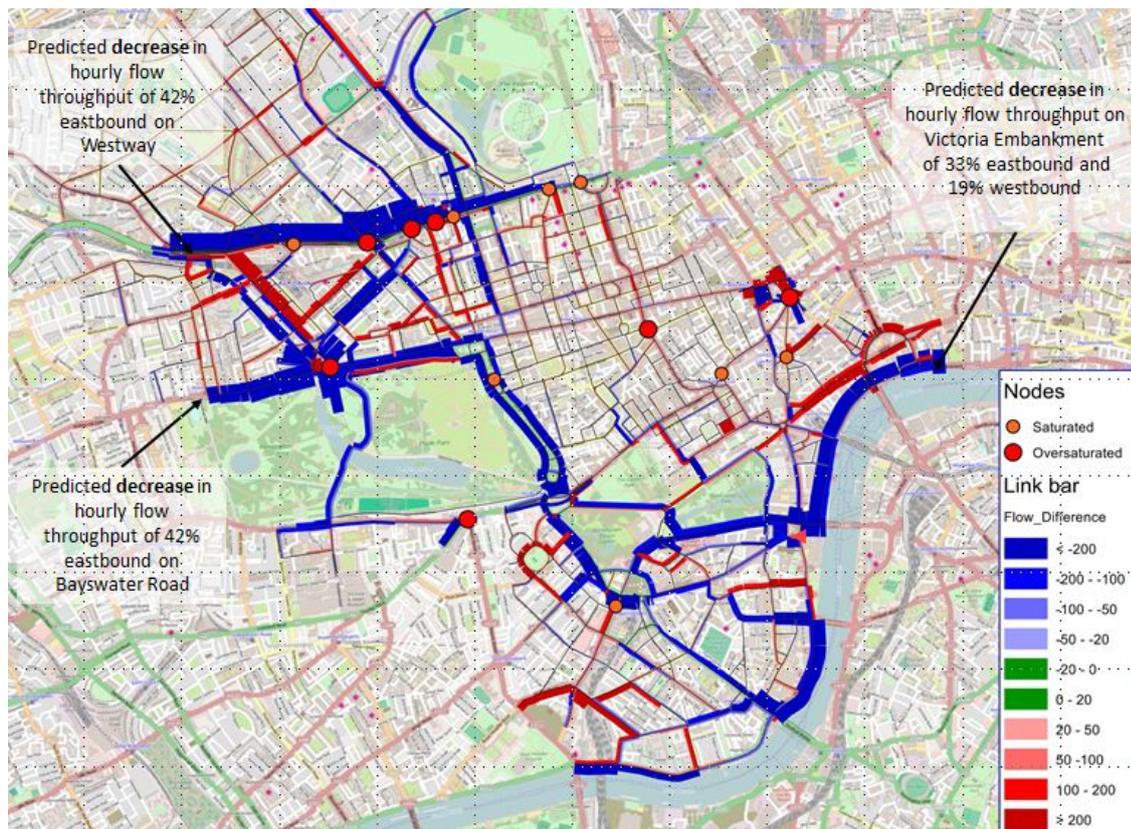


Figure 2: ONE Model revised scheme traffic forecast versus the base traffic scenario – PM Peak

4.2 TfL forecasts that the revised scheme traffic impact will be significant (flow increases between 100-200 vehicles per hour, or traffic flow increases >200 vehicles per hour to an unspecified degree) on a number of Westminster streets. Key routes that are likely to experience significant increases in traffic demand include:

- Westbourne Terrace
- Praed Street
- Bishop's Bridge Road
- Strathearn Place
- Hyde Park Square
- Connaught Street
- Piccadilly
- Strand
- Aldwych Gyratory
- Sutherland Street
- Pimlico Road
- Great Peter Street
- Roads around St John's Wood, as traffic seeks alternative routes to Marylebone Road

- 4.3 The large increases in traffic reassignment around the Paddington area occurs as a consequence of the significant traffic management strategy on the A40 Westway and the alternative routes being sought by traffic as an alternative to Bayswater Road.
- 4.4 Despite the traffic flow reductions (shown in blue), key junctions within the City of Westminster on Marylebone Road and at Lancaster Gate are still predicted to be over-saturated and are likely to experience long delays, unless further mitigation is applied. Of particular note is the traffic reduction required from the A40 Westway at 42% in both AM and PM peaks, which is considerably higher than traffic reduction forecasts from the initial scheme design (20% and 36% respectively), and also the traffic reduction required from Bayswater Road eastbound at 24% and 42% respectively (previously 20% and 32%).
- 4.5 In relation to the current consultation, local stakeholders Paddington Residents Active Concern on Transport (PRACT) has concerns that the forecasts for the Lancaster Gate area are not realistic. It seems unlikely that Westbourne Terrace and Praed Street are suitable routes to accommodate any significant increase in general traffic as a diversion to A40 Westway, given the current degree of 'friction' with buses and taxis on this route.
- 4.6 Strand is also unlikely to be able to accommodate the increases in traffic demand predicted, and this is likely to cause significant congestion and delay, unless further mitigation is applied.

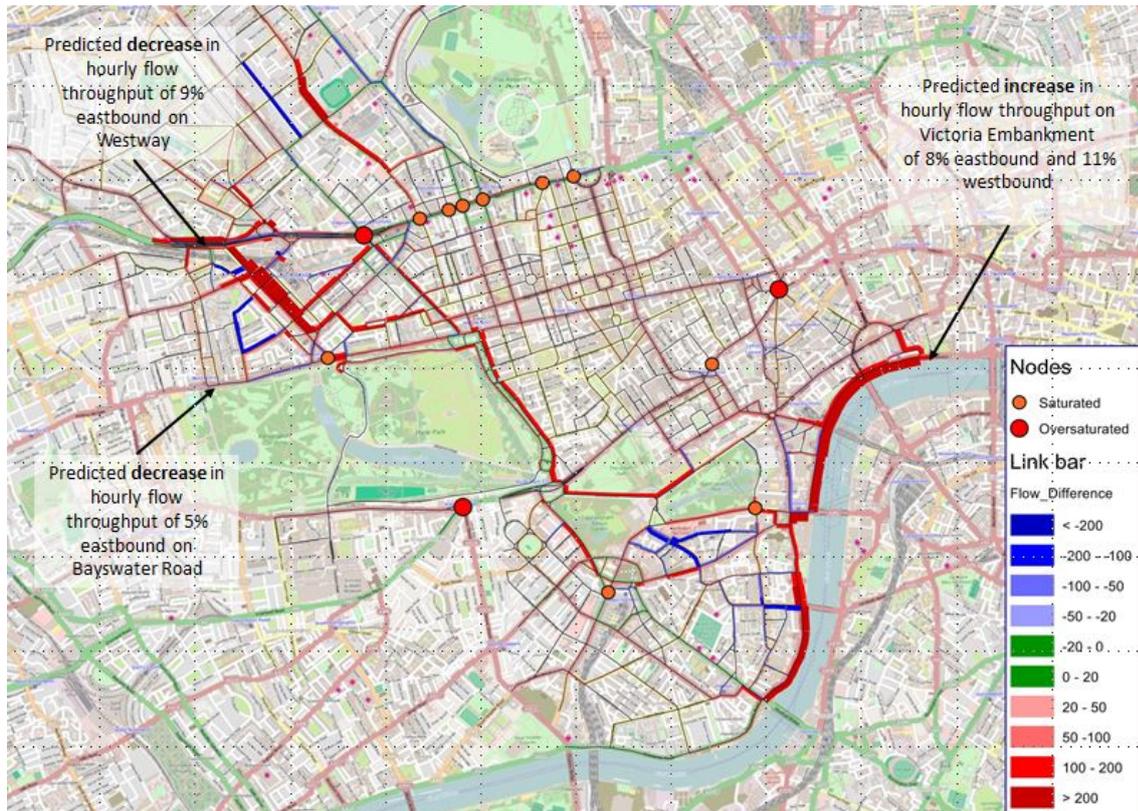


Figure 3: ONE Model revised scheme traffic forecast versus previous scheme – AM Peak

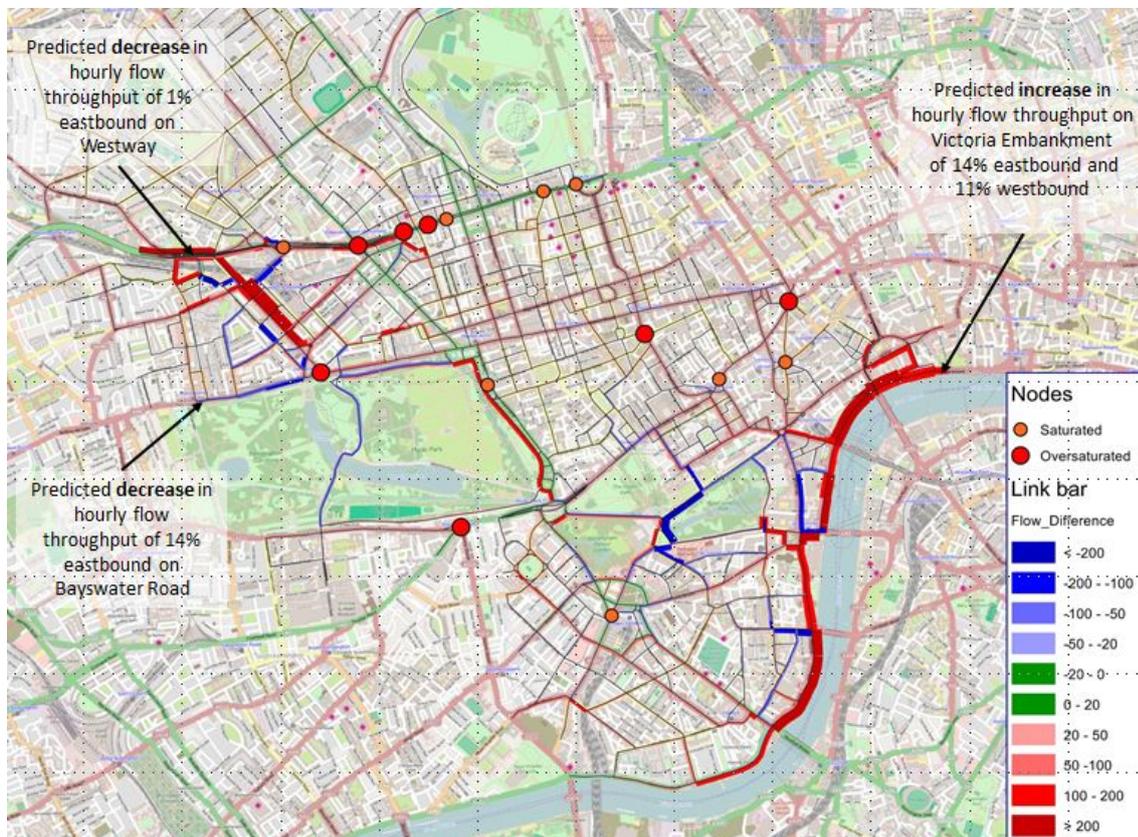


Figure 4: ONE Model revised scheme traffic forecast versus previous scheme – PM Peak

- 4.7 TfL forecasts that the revised scheme can allow significantly more traffic into the area on Victoria Embankment than the previous scheme, which means that more traffic will remain on routes such as Edgware Road, Park Lane, Millbank and through Victoria. However, the higher volumes may mean that there is likely to be a greater degree of rat-running on local roads as a consequence of the capacity restraints on the network.
- 4.8 TfL has provided detailed traffic demand forecasts from the revised VISSIM models. From this data it has been possible to identify further details in terms of required traffic flow reductions in order to maintain relatively smooth traffic flows on the EWCS. These are shown on Table 1 for Parliament Square and Table 2 for Lancaster Gate. Despite the capacity improvements on Victoria Embankment, Bridge Street and Parliament Square, there is still a requirement to reduce traffic demand by around 60% in both AM and PM peak periods at Parliament Square. The revised scheme at Lancaster Gate does not alter the requirement to reduce traffic demand by around 45% in both AM and PM peak periods.

**East-West Cycle Superhighway  
Technical Note TN03 May 2015**



**Review of revised EWCS scheme on behalf of Westminster City Council  
LANCASTER GATE**

Table 1: Traffic flow output data (total PCUs) for Parliament Square from each proposed model

Approach	Survey Dec 2012		Base 2014 TRANSYT Model		Previous 2016 TRANSYT Model		Previous 2016 VISSIM Model		Latest TfL Proposed VISSIM Model	
	AM (cycles)	PM (cycles)	AM (cycles)	PM (cycles)	AM (cycles)	PM (cycles)	AM (cycles)	PM (cycles)	AM (cycles)	PM (cycles)
Parliament Street	708 (67)	881 (217)	709 (N/A)	871 (N/A)	741 (120)	808 (130)	569 (83)	457 (395)	352 (107)	411 (372)
Bridge Street	1564 (326)	1419 (281)	1564 (N/A)	1479 (N/A)	777 (1080)	827 (1090)	498 (706)	552 (811)	683 (563)	780 (655)
St Margaret's Street	803 (532)	851 (85)	804 (N/A)	926 (N/A)	650 (1080)	465 (485)	495 (673)	331 (344)	541 (799)	469 (351)
Broad Sanctuary	641 (50)	767 (100)	640 (N/A)	745 (N/A)	338 (100)	579 (665)	233 (71)	300 (361)	206 (74)	337 (421)
Great George Street	613 (94)	692 (80)	630 (N/A)	689 (N/A)	497 (1200)	308 (160)	423 (812)	176 (110)	401 (794)	239 (137)
TOTAL PCUs (cycles)	4330 (1069)	4610 (763)	4347 (N/A)	4710 (N/A)	3003 (3580)	2987 (2530)	2218 (2345)	1816 (2021)	2183 (2336)	2236 (1936)
Total PCU change	-	-	+0%	+2%	-31%	-35%	-49%	-61%	-50%	-52%
Motorised PCU change	-	-	N/A	N/A	-44%	-49%	-58%	-68%	-58%	-59%
Cycles change	-	-	N/A	N/A	+235%	+232%	+119%	+165%	+119%	+154%

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Table 2: Traffic flow output data (total PCUs) for Lancaster Gate from each traffic model reported by TfL

Approach	Survey Data		Base 2013 TRANSYT Model		Previous 2016 TRANSYT Model		Previous 2016 VISSIM Model		Latest TfL Proposed VISSIM Model	
	AM (cycles)	PM (cycles)	AM (cycles)	PM (cycles)	AM (cycles)	PM (cycles)	AM (cycles)	PM (cycles)	AM (cycles)	PM (cycles)
Westbourne Terrace	Not provided		582 (N/A)	621 (N/A)	218 (50)	255 (50)	Not provided		504 (73)	511 (13)
Sussex Gardens	Not provided		504 (N/A)	650 (N/A)	131 (65)	94 (110)	Not provided		122 (41)	159 (81)
Bayswater Road (East)	Not provided		1354 (N/A)	1791 (N/A)	800 (575)	918 (190)	Not provided		809 (388)	946 (30)
Bayswater Road (West)	Not provided		1198 (N/A)	1069 (N/A)	753 (330)	619 (100)	Not provided		596 (0)	466 (77)
Gloucester Terrace	Not provided		472 (N/A)	128 (N/A)	396 (55)	351 (50)	Not provided		284 (0)	253 (0)
TOTAL PCUs (cycles)	Not provided		4110 (N/A)	4259 (N/A)	2298 (1075)	2237 (500)	Not provided		2315 (502)	2335 (201)
Total PCU change	-	-	-	-	-44%*	-47%*	N/A	N/A	-44%*	-45%*
Motorised PCU change	-	-	-	-	N/A	N/A	N/A	N/A	N/A	N/A
Cycles change	-	-	-	-	N/A	N/A	N/A	N/A	N/A	N/A

\*Model total Passenger Car unit (PCU) flows compared to Base 2013 TRANSYT Model, as no survey data provided for Lancaster Gate

## 5 VISSIM modelling results

5.1 The EWCS has been assessed by TfL using a series of VISSIM micro-simulation models for the entire route. WCC consultants were invited to observe the models running at TfL offices on 11<sup>th</sup> March 2015. Due to time constraints only the AM peak models were viewed. However, this is reported to be the worst case and is sufficient to observe likely operational issues. Following the meeting, TfL provided VISSIM screenshots at key locations (see Appendix C).

5.2 Key issues noted are:

- Long westbound queue on the entire length of Westminster Bridge due to short green time provided, with significant delays to westbound buses as they try to merge with general traffic at the end of the bus lane;
- More capacity provided at Parliament Street (9 seconds of green time) reduces impact on this approach and seems to alleviate queue issues from initial design;
- Very long westbound queue on Victoria Embankment, stretching from Temple Place, through Savoy Street and Northumberland Avenue to Bridge Street, with blocking back and impact on the operation of these side roads and the cycle crossings between the side roads and EWCS on Victoria Embankment;
- The long queues that were shown on Victoria Street in the initial design have been reduced, due to further traffic management further away from the junction, and no longer block back to Great Smith Street and appear to be managed appropriately;
- Long southbound queues on Park Lane, stretching beyond the extent of the model at Stanhope Gate. However, it is reported that this could be managed further away from the Hyde Park Corner junction using wider traffic management;
- Lancaster Gate gyratory operating within capacity, yet the proposed 2 lane to 1 lane merges on Bayswater Road both eastbound and westbound show congestion at the merge points - these will only operate successfully with significant traffic demand reductions.

5.3 Generally, the VISSIM models show all junctions along the EWCS corridor operating within or at capacity, with only a few locations showing large queues and delays. This has been achieved through widescale traffic demand reduction and management elsewhere on the central London network. A statement from TfL regarding the strategy is set out below:

*“Alongside the implementation of the East-West Cycle Superhighway, TfL will be implementing a traffic management strategy which takes advantage of recent and on-going investment in London’s sophisticated traffic signal system. The strategy will manage traffic around the 21 major road schemes planned to be delivered by December 2016 in central and inner London including the East-West Cycle Superhighway. The objective of this strategy will be to protect the bus network, prevent the blocking of exits at junctions and ensure that key intersections do not become gridlocked. The approach will be flexible and we will need to respond to the daily demands of traffic on London’s road network. Signal timings at certain key junctions will be adjusted to manage the flow of traffic into and around central London to ensure traffic keeps moving and we will actively manage traffic flows away from and around locations where construction is taking place.”*

## 6 Revised general journey time change across Westminster

6.1 TfL provide values for general journey time change as a consequence of the EWCS revisions. The average level of vehicle delay per kilometre is expected to increase by 22% in the AM peak period (previous proposal 24%) and 32% in the PM peak period (unchanged from previous proposal). Average journey times per kilometre will increase by 11% in the AM peak period (previous proposal 12%) and 17% in the PM peak period (unchanged from previous proposal).

6.2 The analysis demonstrates clearly that the revised scheme will still give rise to significant increases in vehicle journey times, despite significant traffic flow reduction in the order of between 30%-60%, across the City of Westminster.

## 7 Revised bus journey time changes on Borough routes

7.1 TfL has reported the impact of both the previous scheme and the revised scheme on bus journey times within Westminster. Changes and increase in bus routes forecast to experience a high impact (greater than 5 minutes increase in journey time) are highlighted in Table 3.

**Table 3: Comparison of previous scheme and revised scheme bus journey time impacts**

Bus Journey Time Impact	AM Peak			PM Peak		
	Previous number of routes impacted	Revised number of routes impacted	Change	Previous number of routes	Revised number of routes	Change
High Impact	35	82	+47	27	91	+64

(>+5mins)						
Medium Impact (+2-5 mins)	40	20	-20	50	22	-28
Low Impact (<+2mins)	39	17	-22	49	17	-32
No/Negligible Impact	34	29	-5	22	18	-4

7.2 The analysis does not include all bus routes within the City of Westminster, due to the total data collection requirement for all cross London routes passing through the City of Westminster, yet from those analysed TfL forecasts that in both the AM and PM peak periods significantly more bus services (47 and 64 respectively) will experience journey time impacts in excess of 5 minutes additional journey time. It is not clear how far in excess of 5 minutes additional journey time all of these routes would experience by the revised scheme.

7.3 The significant change and increase in the number of routes likely to experience further delay under the revised scheme (shown in Table 3) is a consequence of greater volumes of traffic entering the Westminster road network following the capacity improvements, when compared to the initial scheme, along Victoria Embankment and at Tower Hill. This allows more traffic into an area that is heavily constrained in order to minimise journey times on the EWCS.

7.4 It is evident from the Modelling Results summary (see Appendix A2) that the Whitehall and Parliament Street corridor is still predicted to experience significant increases in delay and journey time (although this was not so evident in the VISSIM observations).

## 8 Assessment of impact of prohibiting turns between Westminster Bridge and Victoria Embankment.

8.1 TfL has prepared a flow bundle analysis to assess the impact of the proposed banned left turn from Victoria Embankment to Westminster Bridge and the impact of the proposed banned right turn from Westminster Bridge to Victoria Embankment. This flow bundle analysis uses the Base ONE model which has been validated according to the specification of a strategic level model. Inconsistencies between modelled and surveyed data were identified (shown on Table 4), and TfL has issued the following advice:

- The PCU flow comparison shows that the AM peak flows are closely correlated and are within the WebTAG GEH validation criteria. The PM

flows are still lower than observations, with the GEH statistics marginally over the WebTAG threshold of 5. However, they do pass the WebTAG Flow validation criteria for turning movements with flows less than 700 vehicles per hour. Considering these statistics, and the nature of the model, the junction is considered to be appropriately represented.

- The ONE Model is a strategic highway assignment model built in the VISUM software environment. The model is built as a simplified representation of 'real world' at a particular moment in time. The model has been built and calibrated to average November 2012 traffic count and journey time data.
- The Department for Transport's WebTAG Guidance stipulates that a traffic model's goodness-of-fit, between observed and modelled flows, should be demonstrated using two indicators, GEH and the absolute/percentage differences in flows. The ONE Model calibration/validation process used approximately 550 link counts and 60 journey time routes to assess the goodness-of-fit. The ONE Model Validation Report presents the results of the calibration/validation process and demonstrated that the ONE Model is robust and fit-for-purpose to assess schemes in central London at a tactical level.
- Strategic models illustrate the predicted traffic displacement impacts of schemes, over the whole network. Therefore traffic displacement in the ONE Model is indicative and should be considered in relative terms.

Turning movement	AM Peak hour							PM Peak hour						
	Surveyed Vehs (exc cyclists)	ONE Model Vehs	Difference (%)	Surveyed PCUs	ONE Model PCUs	PCU Difference (%)	GEH	Surveyed Vehs (exc cyclists)	ONE Model Vehs	Difference (%)	Surveyed PCUs	ONE Model PCUs	Difference (%)	GEH
LT to Westminster Bridge	111	78	-33 (-30%)	118	111	-7 (-6%)	0.7	156	82	-74 (-47%)	155	90	-65 (-42%)	5.9
RT to Victoria Embankment	193	104	-89 (-46%)	192	154	-38 (-20%)	2.9	173	97	-76 (-44%)	178	98	-80 (-45%)	6.8

**Table 4: TfL flow bundle analysis using the Base ONE Model - inconsistencies with surveyed traffic**

- 8.2 This explanation is welcomed and acknowledged. However, there would seem to be a discrepancy between the conversion from ONE model vehicle flow to ONE model PCU flow in the AM peak at this particular location. All other conversions present similar vehicle flow numbers to PCU numbers, yet the ONE model conversion from vehicles to PCUs seems to show a larger increase. Nevertheless, it would mean that the flow bundle analysis is likely to underestimate the impact of the proposed banned turns between Victoria Embankment and Westminster Bridge.
- 8.3 For the left turn from Victoria Embankment onto Westminster Bridge:
- The majority of traffic originates within the City of Westminster from Trafalgar Square and currently avoids Parliament Square;
  - Almost all traffic with origins in the City of Westminster and destinations around or beyond Waterloo currently use Westminster Bridge, with only a very small proportion using Waterloo Bridge;
  - Under the TfL revised scheme proposal, almost all traffic reassigns to Whitehall - Parliament Square - Bridge Street;
  - A proportion from Victoria Embankment turn right and pass through Parliament Square, travel southbound along Abingdon Street- Millbank and cross at Lambeth Bridge.
  - A proportion find a wider alternative route to use Waterloo Bridge.

8.4 For the right turn from Westminster Bridge onto Victoria Embankment:

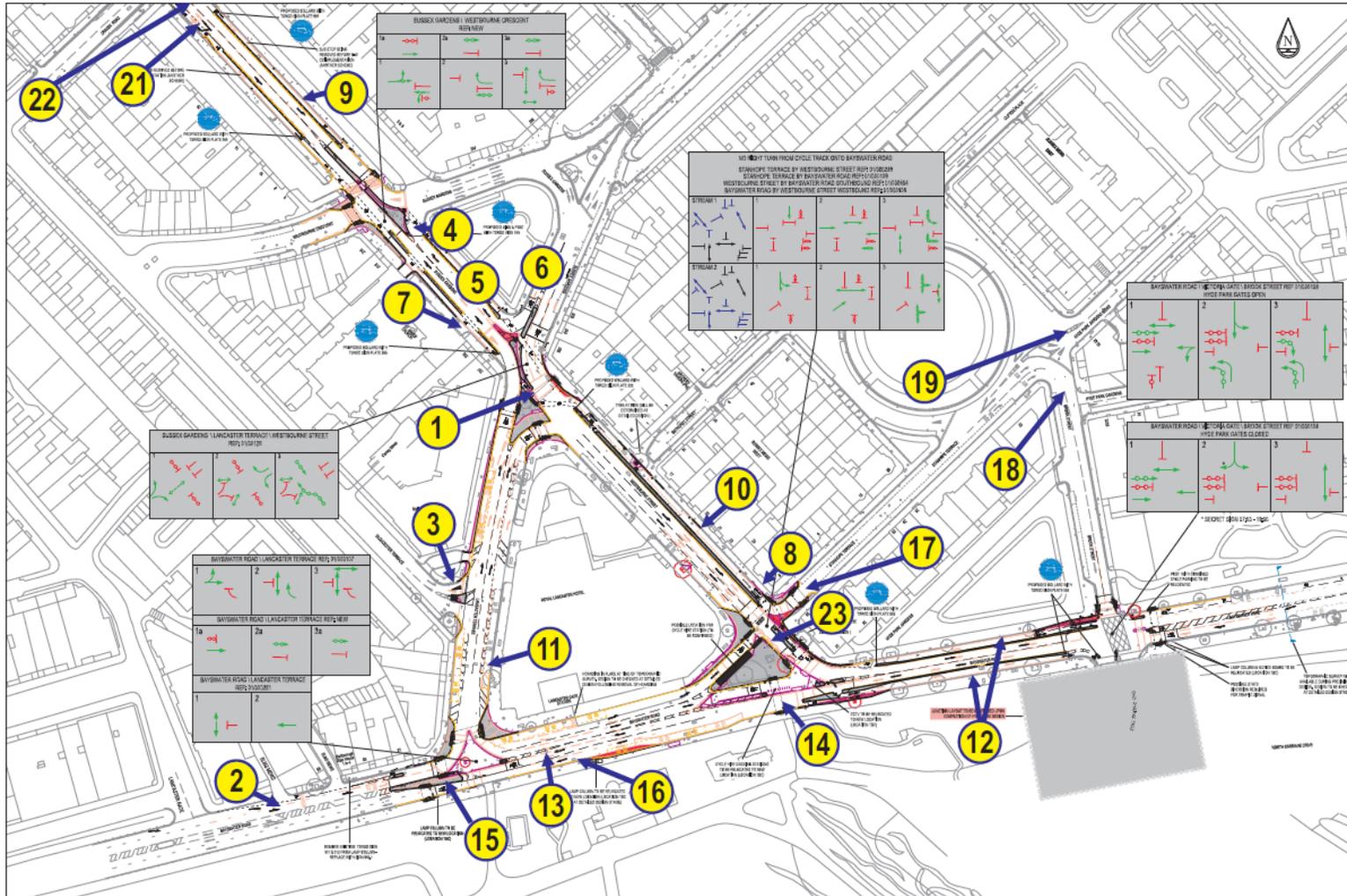
- The majority of traffic originates from the A23 and A302 and has destinations within Westminster, splitting broadly equally at the Northumberland Avenue junction;
- Almost all traffic with origins beyond Waterloo and destinations within Westminster use Westminster Bridge, with small proportions using Waterloo Bridge and Lambeth Bridge;
- Traffic crossing Westminster Bridge with destinations within Westminster split broadly equally between Victoria Embankment and Whitehall (which includes buses);
- Under the TfL revised scheme proposal, the greatest proportion of traffic reassigns to - Bridge Street- Parliament Square- Whitehall in the AM peak;
- A proportion circumnavigates Parliament Square and returns to Victoria Embankment;
- A proportion crosses presumably at Lambeth Bridge and passes through Parliament Square;
- A proportion crosses at Waterloo Bridge or Blackfriars Bridge;

8.5 The flow bundle analysis indicates that valuable traffic capacity at Parliament Square would be compromised by the prohibition of turns between Victoria Embankment and Westminster Bridge, and cause a significant reassignment of traffic onto Whitehall/ Parliament Street, or around Parliament Square, and to a lesser extent onto Waterloo Bridge or Lambeth Bridge. This reassignment is logical (although the scale is likely to be greater than shown) yet would be to the detriment of bus and taxi journey times on Whitehall/ Parliament Street and would cause further reassignment of general traffic, creating potential rat-running issues on other Westminster roads.

## 9 Design issues - Lancaster Gate

9.1 The review of the revised scheme design at Lancaster Gate has identified a number of concerns (see Table 5). Reference is made to locations shown on Figure 5.

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**Figure 5: Lancaster Gate design comments**

Table 5: Design issues - Lancaster Gate

Ref	Comment
General item A	The revised scheme retains a proliferation of separate traffic signal controlled phases for traffic movements, cycle tracks, contra-flow cycling and pedestrians with multiple stop lines for some movements. Sections of this arrangement will be challenging for users to understand, and could result in a high risk of non-compliance by cyclists at traffic signals, with potential risk of collisions.
B	The complexity of the control arrangement for cyclists is likely to result in excessive delay for cyclists, meaning that quieter, parallel routes that link either into or east of Hyde Park (e.g. Albion Street) are likely to be far more attractive routes to many cyclists. An excessive number of stop lines are crossed by each cyclist using the East-West Cycle Superhighway within the Lancaster Gate area.
C	The revised scheme introduces an east-west 'tube' for cyclists yet there are locations where entry/ exit of this new facility by cyclists to/from City of Westminster roads is not entirely catered for in a desirable manner (e.g. Bayswater Road, Westbourne Crescent, Sussex Gardens, Gloucester Terrace, Sussex Square).
D	The minimum width of the two-way cycle track proposed in this area is 3.0 metres, this is TfL's desirable minimum width required for two-way tracks. This would allow overtaking or social cycling only where there is a heavy tidal flow in one direction. This may be inadequate for many less experienced or less confident cyclists. This width takes no account for 'wobble room' for cyclists starting from a standing start and travelling at below 3 miles per hour or travelling at speeds above 7 miles per hour. Given the number of stop lines in this area, this means the proposed cycle track width could present a significant risk to cyclists.
E	The revised scheme design at Lancaster Gate still requires a significant alterations to the public realm and an increase in traffic signal infrastructure. The TfL team has been asked to review some of the traffic islands.
Specific item 1	At junction reference 01/00125 Sussex Gardens / Lancaster Terrace / Westbourne Street there is a risk that delay to cyclists will result in part of each cyclist platoon being blocked in Westbourne Street within the live carriageway. Cyclists must give way to vehicles from the left, which is not intuitive, if insufficient clearance time is provided to enable cyclists to pass westbound between Westbourne Terrace and Sussex Gardens.
2	The reduction and merge from two general traffic lanes to only one general traffic lane on both Bayswater Road eastbound and westbound approaches present operational and safety issues and should be reconsidered. This may mean further traffic demand reductions would be required from those reported by TfL (some 24% in the AM peak and 42% in the PM peak), as the bottleneck is likely to result in long queues and delays (see para 5.2).
3	It is understood that a proportion of the main southbound strategic traffic

	<p>movement from Westbourne Terrace to Lancaster Gate is re-routed to Gloucester Terrace within the VISSIM traffic model, and affects traffic demand on this approach. This also means that a traffic management strategy is required at the Craven Road/ Gloucester Terrace junction, which is not reported in any detail. The scheme design does not propose a formal diversion of traffic (which could only be in the form of signing), and so there are not any measures that would prevent/ deter traffic from travelling from Westbourne Terrace to Westbourne Street via the Sussex Gardens Gyratory. This could result in greater traffic impact on Westbourne Terrace than is reported in VISSIM modelling.</p>
4	<p>Paddington Residents Active Concern on Transport (PRACT) has requested, with the support of the City Council, that TfL consider options for introducing a pedestrian crossing to the centre of Sussex Gardens. TfL has yet to demonstrate how this can be achieved. It is felt that the significant traffic flow reductions would provide opportunity for a facility to be provided.</p>
5	<p>Northbound EWCS cyclists wishing to turn right onto the proposed Central London Cycle Grid (CLCG) routes Quietway 7 and Circle Line North on Sussex Gardens are required to enter the Sussex Gardens gyratory, the proposed arrangement is ambiguous and not coherent for all road users, which may present a safety risk.</p>
6	<p>Cyclists entering from the proposed Central London Cycle Grid (CLCG) routes Quietway 7 and Circle Line North (committed cycle facilities) southbound approach on Sussex Gardens must weave across three lanes of general traffic at Sussex Gardens gyratory to enter the advanced cyclist stop line (ASL), then possibly enter northbound EWCS through a gap in the median intended for vehicular access to St James Church. This is ambiguous, not coherent for all road users, and may present a safety risk. The interaction between the Quietway routes and EWCS will be considered as part of the design development of the CLCG.</p>
7	<p>The EWCS crosses vehicle access footway crossovers outside St James' Church on Sussex Gardens. This is a potentially hazardous arrangement, exacerbated by tight turning space at the access points (see Road Safety Audit - Section 9).</p>
8	<p>Eastbound cyclists using EWCS on Westbourne Street cannot access Bayswater Road westbound without disobeying a prohibited right-turn. Cyclists can only make the right turn from Westbourne Street onto the westbound Bayswater Road using the general traffic lanes, yet this is not evident within the design and requires cyclists to weave across 2 general traffic lanes, which is a potential risk to cyclist safety. Less confident cyclists approaching from Westbourne Terrace could choose to continue their westbound journey along the CLCG on Craven Road, and this would require appropriate signing.</p>
9	<p>As agreed with TfL on 20 May 2015, mandatory cycle lanes are now to be provided on Westbourne Terrace between Sussex Gardens and Craven Road in each direction instead of the segregated facilities proposed in the consultation. The EWCS infrastructure will not be provided north of</p>

	Craven Road at this time due to the continued traffic diversions associated with Crossrail.
10	The revised scheme results in the loss of all resident permit holder parking spaces on Westbourne Street. There is reasonable alternative provision in Sussex Square and Stanhope Terrace.
11	The revised scheme includes additional bus stand kerbside space replacing a section of existing timed on-street loading in Lancaster Terrace, thus reducing capacity. The operation of the stand may be affected by the presence of an existing tree, and this should be reviewed.
12	The revised scheme results in a loss of timed on-street loading and parking capacity along both sides of Bayswater Road to accommodate cycle track infrastructure. This could create a displaced parking issue for overnight and Sunday parking and will need to be reviewed.
13	The westbound right turn from Bayswater Road to Lancaster Terrace is controlled separately from the westbound ahead traffic, yet there is no separating island between the lanes. It is understood that TfL is reviewing this arrangement.
14	Westbound cyclists within the segregated lane on Bayswater Road receive a green signal at the same time as westbound traffic, which creates a merging conflict and potential weaving conflict with buses entering the bus stop. This will be hazardous, as both will perceive the green signal to present conflict-free access to the junction.
15	Proposed design of pedestrian island on Bayswater Road, at junction with Lancaster Terrace. This needs to be reviewed by TfL as the design does not appear to cater for pedestrian capacity, and will no longer accommodate pedestrian desire lines between the parks and Lancaster Gate station. The reverse stagger of this crossing has been highlighted in the TfL Road Safety Audit (see Section 9).
16	The implication on traders at Bayswater Road and the need to provide loading facilities for them, and the loss of footway space and reduced pedestrian comfort level requires further consideration.
17	Stakeholders (SEBRA, PRACT and residents of Stanhope Terrace) with the support of the City Council request a raised crossing/raised table over Stanhope Terrace at its junction with Westbourne Street.
18	Stakeholders (SEBRA, PRACT and residents of Stanhope Terrace) with the support of the City Council request a raised crossing/raised table over Brook Street south of Stanhope Terrace. It would be advisable to consider a holistic scheme for this junction in conjunction with (19).
19	Stakeholders (SEBRA, PRACT and residents of Stanhope Terrace) with the support of the City Council request a new Zebra crossing over Stanhope Terrace east of Brook Street. It would be advisable to consider a holistic scheme for this junction in conjunction with (18).
20	Replace zig-zags on entry to Westbourne Crescent from Sussex Gardens. Additional parking bays to be considered on each side. This is being considered by TfL.
21	Linkage between Craven Road and Sussex Gardens to be safeguarded for Quietway cycling standards (linkage required as part of the CLCG).

22	EWCS infrastructure not to extend north of Craven Road at this time (see point 9).
23	Stakeholders (SEBRA, PRACT and residents of Stanhope Terrace) with the support of the City Council request two southbound lanes are provided at the junction on Westbourne Street from Stanhope Terrace to Bayswater Road. This is intended to provide junction capacity and vehicle queue resilience. The loading bay outside the hotel would require restrictions to enable the flared approach to provide additional capacity and it is suggested that the loading bay operates at all times except between 8am and 10 am and 4pm to 7pm, Monday to Sunday. This is illustrated on the sketch layout shown on Figure 6.



## 10 Road Safety Audit

10.1 The City Council received the following TfL Road Safety Audits on 9 April 2015 (included at Appendix D):

- Ref 2021.04 - Audit Report Westbourne Terrace Loading Bay FINAL
- Ref 2021.05 - Audit Report West DP1 and DP2 FINAL
- Ref 2021 13 - Audit Report (Westbourne Terrace - MODIFIED LEFT TURNS) - FINAL
- Ref 2021.17 - Audit Report (Lancaster Gate Alterations - post 1st consultation)

10.2 A PROBLEM is identified with potential that the proposals encourage cyclists to adopt a position to the nearside of vehicles, on the approach to a signalised junction. Encouraging cyclists to adopt a position to the nearside may expose them to a potential for 'left hook' type conflicts, particularly by larger vehicles with reduced sideways visibility such as heavy good vehicles. This was noted at the following locations:

- Westbourne Terrace (northbound) junction with Bishops Bridge Road
- Westbourne Terrace (northbound) junction with Cleveland Terrace
- Westbourne Terrace (southbound) junction with Cleveland Terrace
- Westbourne Terrace (northbound) junction with Craven Road
- Westbourne Terrace (southbound) junction with Craven Road

This was accepted by the designers, and a revised design provides measures to increase visibility of cyclists in the approach to the junction, and to reduce the potential for cycle conflict with left turning vehicles by encouraging cyclists to adopt a position in front of vehicles when waiting at the stop-line and to adopt a more assertive position in free-flow traffic conditions. TfL considers this to be an improvement over the existing situation.

WCC acknowledges the design changes and recognises that the scheme seeks to minimise the potential conflict between cyclists and left-turning vehicles, and will review the design at detailed design stage.

10.3 A PROBLEM is identified with concern that the segregation island between the EWCS and Westbourne Street alongside St James Church (see Specific item 7, Table 3) may hamper the swept path for vehicles. The location of the segregation may not be immediately visible to drivers when turning onto or from the carriageway. Drivers may fail to appreciate the presence of the island and over run the feature.

This was rejected by the Designer and Client Organisation, as TfL has undertaken swept path analysis of the largest vehicles expected to use the access points, and WCC has indicated it is unlikely that large refuse vehicles would use the church car park. TfL has confirmed that should this be required, this will be changed. The segregation islands will be kerbed and 1.0m wide at this location, it is considered that they should be sufficiently conspicuous to turning traffic. The Road Safety Audit does not identify a risk to cyclists from vehicles accessing the Church, and this will need to be monitored.

- 10.4 A PROBLEM is identified at the staggered crossing that replaces the large triangular refuge at the junction of Bayswater Road/ Lancaster Terrace (see Specific item 15 in Table 3). The 'non preferred' arrangement at these staggered pedestrian crossings guides pedestrians to 'walk away' from approaching traffic. The absence of a pedestrian deterrent may invite pedestrians to ignore the stagger and cross in a straight ahead movement. Any pedestrian performing this manoeuvre may do so behind the stop-line, and therefore potentially between stationary, accelerating or decelerating vehicles thereby increasing the potential for conflict. Recommendation to install pedestrian guard rail (PGR).

This was rejected by the Designer and Client Organisation, with the response that considering the risks posed by installing PGR, and the very good visibility, simple traffic movements and stagger lengths in accordance with design guidance, no PGR is to be provided here.

WCC agrees that PGR should not be installed, nevertheless the Road Safety Audit does not consider the risk that pedestrians will not use the crossing at all, in preference to using the proposed pedestrian refuge as a shield to facilitate a straight crossing movement over Bayswater Road on the desire line to Kensington Gardens. In addition, there is a risk that the smaller island will not accommodate pedestrian volumes at peak times, and pedestrians will spill into the carriageway. It is recommended that this should be reviewed.

- 10.5 No other PROBLEMS or ISSUES have been identified, yet WCC wish items set out in Table 5 are reviewed at the next design stage.

## APPENDIX A

A1 EWCS Modelling results summary September 2014

A2 EWCS Modelling results summary February 2015

**East-West Cycle Superhighway - Modelling Results**

Correct as at 23 September 2014	(A) Base Model - current situation on street				(B) Future base model - Expected situation on-street Dec 2016 without scheme				(C) Future journey times Dec 2016 with scheme				(D) Difference between Future with scheme (C) and base (A)		(E) Difference between future with scheme (C) and future base (B)				
	Current journeys		AM	PM	Journeys modelled		AM	PM	Journeys modelled		AM	PM	AM	PM	AM	PM			
<b>Traffic</b> Average journey times (minutes:seconds)	Limehouse Link tunnel to Hyde Park Corner	Westbound	34:34	30:51	Limehouse Link tunnel to Hyde Park Corner	Westbound	32:39	26:55	Limehouse Link tunnel to Hyde Park Corner	Westbound	50:28	44:20	15:54	13:29	17:49	17:25			
		Eastbound	27:51	30:38		Eastbound	26:06	31:49		Eastbound	35:29	35:06	7:38	4:28	9:23	3:17			
	East Smithfield to St Margaret Street (Parliament Square exit)	Westbound	18:15	17:06	East Smithfield to St Margaret Street (Parliament Square exit)	Westbound	16:30	13:18	East Smithfield to St Margaret Street (Parliament Square exit)	Westbound	18:34	23:14	0:19	6:08	2:04	9:56			
		Eastbound	14:50	16:37		Eastbound	12:25	15:54		Eastbound	11:51	12:45	-2:59	-3:52	-0:34	-3:09			
	Westminster Bridge to Hyde Park Corner (Knightsbridge)	Westbound	8:03	8:01	Westminster Bridge to Hyde Park Corner (Knightsbridge)	Westbound	7:51	7:42	Westminster Bridge to Hyde Park Corner (Knightsbridge)	Westbound	8:03	8:35	0:00	0:34	0:12	0:53			
		Eastbound	7:02	7:37		Eastbound	6:37	7:07		Eastbound	16:00	13:59	8:58	6:22	9:23	6:52			
	Lancaster Gate to A40 Westway	Northbound	4:36	5:04	Lancaster Gate to A40 Westway	Northbound	4:41	5:10	Lancaster Gate to A40 Westway	Northbound	4:20	4:53	-0:16	-0:11	-0:21	-0:17			
		Southbound	4:36	4:51		Southbound	4:30	4:16		Southbound	6:16	5:18	1:40	0:27	1:46	1:02			
	<b>Buses</b> A sample of journey times on four routes through the scheme area (minutes:seconds)  Difference against base (A), expressed as a range in column D	Route 15 (between Tower Hill and Byward Street)	Westbound	10:00	9:54	Future base data available for general traffic journeys only	Route 15 (between Tower Hill and Byward Street)	Westbound			Route 15 (between Tower Hill and Byward Street)	Westbound			0-1m	-(2-5m)	Future base data available for general traffic journeys only		
			Eastbound	5:06	7:18			Eastbound				Eastbound			-(0-1m)	-(0-1m)			
Route 453 (between Westminster Bridge and Trafalgar Square, via Parliament Square)		Northbound	8:18	8:06	Route 453 (between Westminster Bridge and Trafalgar Square, via Parliament Square)		Northbound			Northbound			2-5m	1-2m					
		Southbound	8:24	10:48			Southbound			Southbound			7-10m	1-2m					
Route 16 (between Park Lane and Grosvenor Place)		Northbound	2:24	2:42	Route 16 (between Park Lane and Grosvenor Place)		Northbound			Northbound			-(0-1m)	0-1m					
		Southbound	2:06	2:12			Southbound			Southbound			0-1m	0-1m					
Route 94 (between Lancaster Gate and Westbourne Terrace)		Westbound	3:18	3:30	Route 94 (between Lancaster Gate and Westbourne Terrace)		Westbound			Westbound			1-2m	2-5m					
		Eastbound	8:48	5:48			Eastbound			Eastbound			-(1-2m)	-(1-2m)					
<b>Cycling</b> Average journey times (minutes)		Royal Mint Street to Hyde Park Corner	Westbound	32	32		Future base data available for general traffic journeys only	Royal Mint Street to Hyde Park Corner	Westbound	30	29	Royal Mint Street to Hyde Park Corner	Westbound	30	29	-2		-3	Future base data available for general traffic journeys only
			Eastbound	31	31				Eastbound	31	29		0	-2					
	Royal Mint Street to St Margaret Street (Parliament Square exit)	Westbound	20	20	Royal Mint Street to St Margaret Street (Parliament Square exit)	Westbound		19	17	Royal Mint Street to St Margaret Street (Parliament Square exit)	Westbound	19	17	-1	-3				
		Eastbound	21	21		Eastbound		17	16		-4	-5							
	Parliament Square to Hyde Park Corner	Westbound	11	12	Parliament Square to Hyde Park Corner	Westbound		11	11	Parliament Square to Hyde Park Corner	Westbound	11	11	0	-1				
		Eastbound	10	10		Eastbound		15	13		5	3							
	Lancaster Gate to A40 Westway	Northbound	7	7	Lancaster Gate to A40 Westway	Northbound		5	4	Lancaster Gate to A40 Westway	Northbound	5	4	-2	-3				
		Southbound	7	7		Southbound		5	5		-2	-2							
	<b>Pedestrians</b> Traffic signal cycle times and associated wait times (seconds)  NOTE: Future base would be same as current base without scheme	Tower Hill - Minories - Shorter Street	Max. cycle time	88	88	Tower Hill - Minories - Shorter Street		Max. cycle time	88	88	Tower Hill - Minories - Shorter Street	Max. cycle time	96	96	8	8	8	8	
			Max. wait time	82	82			Max. wait time	82	82		Max. wait time	90	90	8	8	8	8	
Upper Thames Street - Queen Street - Queen Street Place		Max. cycle time	104	104	Upper Thames Street - Queen Street - Queen Street Place	Max. cycle time	104	104	Upper Thames Street - Queen Street - Queen Street Place	Max. cycle time	104	104	0	0	0	0			
		Max. wait time	98	98		Max. wait time	98	98		Max. wait time	98	98	0	0	0	0			
Parliament Square - Parliament Street - Bridge Street		Max. cycle time	112	112	Parliament Square - Parliament Street - Bridge Street	Max. cycle time	112	112	Parliament Square - Parliament Street - Bridge Street	Max. cycle time	120	112	8	0	8	0			
		Max. wait time	105	105		Max. wait time	105	105		Max. wait time	114	106	9	1	9	1			
Knightsbridge - Hyde Park Corner - Grosvenor Place		Max. cycle time	96	96	Knightsbridge - Hyde Park Corner - Grosvenor Place	Max. cycle time	96	96	Knightsbridge - Hyde Park Corner - Grosvenor Place	Max. cycle time	96	104	0	8	0	8			
		Max. wait time	90	90		Max. wait time	90	90		Max. wait time	90	98	0	8	0	8			

## East-West Cycle Superhighway - Modelling Results

Correct as of 24th February 2015	Base Model - current situation on street				Mitigated journey times Dec 2016 (including impact of advanced traffic signal management)				Difference between mitigated and base			
	Current journeys		AM	PM	Journeys modelled		AM	PM	AM	PM		
<b>Traffic</b> Average journey times (minutes:seconds)	Limehouse Link tunnel to Hyde Park Corner	Westbound	34:34	30:51	Limehouse Link tunnel to Hyde Park Corner	Westbound	40:47	34:38	6:13	3:47		
		Eastbound	27:51	30:38		Eastbound	31:49	36:18	3:58	5:40		
	East Smithfield to St Margaret Street (Parliament Square exit)	Westbound	18:15	17:06	East Smithfield to St Margaret Street (Parliament Square exit)	Westbound	22:07	15:36	3:52	-1:30		
		Eastbound	14:50	16:37		Eastbound	12:08	12:52	-2:42	-3:45		
	Westminster Bridge to Hyde Park Corner (Knightsbridge)	Westbound	8:03	8:01	Westminster Bridge to Hyde Park Corner (Knightsbridge)	Westbound	9:24	10:30	1:21	2:29		
		Eastbound	7:02	7:37		Eastbound	11:58	14:00	4:56	6:23		
	Lancaster Gate to A40 Westway	Northbound	4:36	5:04	Lancaster Gate to A40 Westway	Northbound	4:12	4:43	-0:24	-0:21		
		Southbound	4:36	4:51		Southbound	4:45	7:18	0:09	2:27		
	<b>Buses</b> A sample of journey times on four routes through the scheme area (minutes:seconds)	Route 15 (between Tower Hill and Byward Street)	Westbound	10:00	9:54	Route 15 (between Tower Hill and Byward Street)	Westbound	-(-2-5m)	-(-2-5m)	Not applicable to buses as journey time changes reported in previous columns		
			Eastbound	5:06	7:18		Eastbound	0-1m	-(0-1m)			
Route 453 (between Westminster Bridge and Trafalgar Square, via Parliament Square)		Northbound	8:18	8:06	Route 453 (between Westminster Bridge and Trafalgar Square, via Parliament Square)	Northbound	7-10m	1-2m				
		Southbound	8:24	10:48		Southbound	5-7m	2-5m				
Route 16 (between Park Lane and Grosvenor Place)		Northbound	2:24	2:42	Route 16 (between Park Lane and Grosvenor Place)	Northbound	-(-0-1m)	-(-0-1m)				
		Southbound	2:06	2:12		Southbound	1-2m	0-1m				
Route 94 (between Marble Arch West and Lancaster Gate)		Westbound	3:18	3:30	Route 94 (between Marble Arch West and Lancaster Gate)	Westbound	1-2m	2-5m				
		Eastbound	8:48	5:48		Eastbound	-(-2-5m)	0-1m				
<b>Cycling</b> Average journey times (minutes)		Royal Mint Street to Hyde Park Corner	Westbound	34	34	Royal Mint Street to Hyde Park Corner	Westbound	32	31		-2	-3
			Eastbound	33	33		Eastbound	35	31		2	-2
	Royal Mint Street to St Margaret Street (Parliament Square exit)	Westbound	20	20	Royal Mint Street to St Margaret Street (Parliament Square exit)	Westbound	20	18	0	-2		
		Eastbound	21	21		Eastbound	18	17	-3	-4		
	Parliament Square to Hyde Park Corner	Westbound	13	14	Parliament Square to Hyde Park Corner	Westbound	12	13	-1	-1		
		Eastbound	12	12		Eastbound	17	14	5	2		
	Lancaster Gate to A40 Westway	Northbound	7	7	Lancaster Gate to A40 Westway	Northbound	4	5	-3	-2		
		Southbound	7	7		Southbound	4	5	-3	-2		
	<b>Pedestrians</b> Traffic signal cycle times and associated wait times (seconds)	Tower Hill - Minories - Shorter Street	Max. cycle time	88	88	Tower Hill - Minories - Shorter Street	Max. cycle time	96	96	8	8	
			Max. wait time	82	82		Max. wait time	90	90	8	8	
Upper Thames Street - Queen Street - Queen Street Place		Max. cycle time	104	104	Upper Thames Street - Queen Street - Queen Street Place	Max. cycle time	104	104	0	0		
		Max. wait time	98	98		Max. wait time	98	98	0	0		
Parliament Square - Parliament Street - Bridge Street		Max. cycle time	112	112	Parliament Square - Parliament Street - Bridge Street	Max. cycle time	120	112	8	0		
		Max. wait time	105	105		Max. wait time	114	106	9	1		
Knightsbridge - Hyde Park Corner - Grosvenor Place		Max. cycle time	96	96	Knightsbridge - Hyde Park Corner - Grosvenor Place	Max. cycle time	96	104	0	8		
		Max. wait time	90	90		Max. wait time	90	98	0	8		

## APPENDIX B

TfL Operational and Visualisation Report March 19 2015

<b>Scheme / Project:</b>	<b>East – West CSH Modelling Data Requests</b>	
<b>Client:</b>	<b>Peter Hewitt / Jacobs &amp; WCC</b>	
<b>Modelling Platform:</b>	<b>ONE EWCSH Final Models (Dec '14/ Jan '15)</b>	
<b>Authored:</b>	<b>MF</b>	<b>16/03/2015</b>
<b>Checked:</b>	<b>TD</b>	<b>19/03/2015</b>
<b>Approved:</b>	<b>PH</b>	<b>24/03/2015</b>

## 1. Introduction

The Operational Modelling and Visualisation Team were asked to provide additional ONE Model analysis for the East – West Cycle Superhighways consultation. Specific data requests were made by Westminster City Council and their traffic consultants Jacobs. The following Technical Note responds to data requests for the following items:

1. General journey time changes across the Borough (to compare to results in previous consultation note);
2. Bus journey time changes on the routes identified in the previous consultation note; and
3. Flow Bundle information from the Base model for identified turns.

The above requests complement a previous model data enquiry which included the following, and was issued on 11th March 2015:

1. Select link analysis for the existing left-turn and right-turn between Westminster Bridge and Victoria Embankment, so that we could identify what traffic could be maintained under a revised design.
2. ONE model flow difference diagrams covering the network (as before) for:
  - a. Base vs 2016 Sensitivity (revised scheme)
  - b. 2016 Sensitivity (previous scheme) vs 2016 (revised scheme)

## 2. Modelling Assumptions

The analysis of scheme impacts presented in this note should be understood taking note of the following modelling assumptions and inputs.

### 2.1. Strategic Models

The Operational Network Evaluator (ONE) Model is a strategic highway assignment model built in the VISUM software environment. The model is built as a simplified representation of the real world at a particular moment in time. The model has been built and calibrated to average November 2012 traffic count and journey time data. The scope and scale of the model is in line with WebTAG guidance, which states:

*“Within the Area of Detailed Modelling, a relatively high level of detail will generally be appropriate. Guidelines for Developing Urban Transport Strategies (Institution of Highways and Transportation 1996) suggests that “all roads that carry significant volumes of traffic” should be included and more generally that networks “should be of sufficient extent to include all realistic choices of route available to drivers”.*”

Due to the nature of assignment modelling and the assumption that users of the network have perfect information when deciding on a route, the inclusion of too many smaller roads will most likely result in an unrealistic amount of rat-running. For this reason only key strategic roads and through routes are included in a strategic model, as outlined in WebTAG.

## **2.2. Fixed Demand and Zoning**

The demand contained in the ONE Model is fixed, with the same number of trips assigned to the network in the Base and Proposed models. Over time, individuals may decide to reduce their mobility or use alternative modes – effects which are not represented in the ONE Model.

The demand in the ONE Model is based on estimates provided by Group Planning and the London Transport Study (LTS) model. Whilst in reality demand origins and destinations can be anywhere on the highway network, this behaviour is too complex to represent in a strategic model. Consequently trips are grouped into zones and load onto or exit from the network at designated locations. The point at which trips are loaded onto the network influences the routes vehicles take through the network and every effort is made to locate these points in logical locations. However it is possible that when changes are made to the network, some unrealistic local trips might be observed.

## **2.3. Equilibrium Assignment**

The ONE Model utilises an equilibrium assignment methodology wherein it assigns trips between all origins and destinations to their least cost path and assumes that drivers have perfect network knowledge when selecting routes.

At the outset the traffic model the algorithm assesses, for each origin trip, all the possible route permutations to every destination, it then selects the lowest cost route and assigns trips through the network. This infers that the trip has perfect knowledge of the delays and congestion along the each and every route and therein makes decisions about the lowest cost route before departing. Routing decisions will differ between the Base and Proposed scenarios as a result of the changes made and the point at which a new route is chosen can be some distance from the changes themselves. Consequently the impacts of reassignment can be dispersed over a large area, and evidence of ‘model noise’ might be observed.

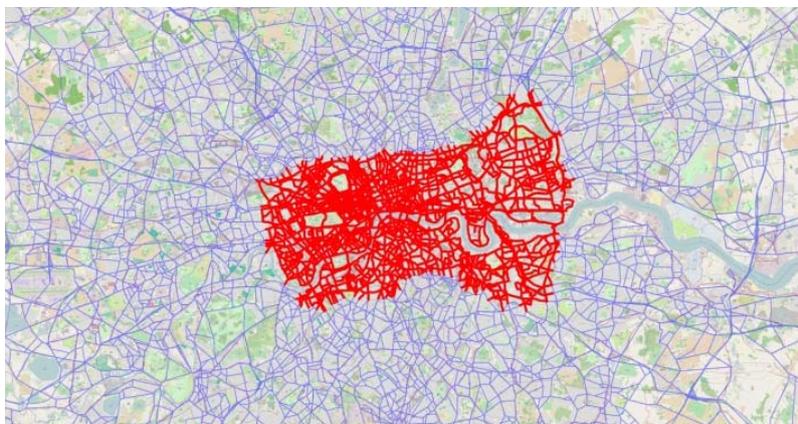
The results presented are therefore more representative of network conditions sometime after the changes have been implemented, when individuals have learned of alternative routes and chosen the one best suited to them, rather than the local (and potentially greater) effects that may occur on the first day after the changes are implemented.

## **2.4. Bus Journey Times from the ONE Model**

Bus routes in the ONE Model do not currently have calibrated bus stop dwell times based on observed data; therefore it is not possible to extract meaningful, absolute, modelled bus route journey times comparable with that on-street. However, potential changes to average bus route journey times can be inferred if the following assumptions are made:

1. The amount of time that a bus dwells at bus stops is unchanged by proposed schemes.
2. No additional delay is experienced by a bus when it is protected by a bus lane e.g. a bus route’s journey time will remain the same between scenarios over the part of a route when the bus is travelling in a bus lane.
3. When a bus is travelling in the main carriageway with general traffic (e.g. there is no bus lane), the bus experiences the same travel times and levels of delay as the general traffic.
4. The ONE Model is not a micro-simulation model and therefore specific random vehicle interactions at the micro-level, such as the effects of on-street parking and blocked access to and from bus stops are not taken into account.

The ONE Model covers, in detail, the area of the London network shown below in red. Only data for bus routes within that area can be extracted. A number of bus routes have not been included in the data set and are therefore not included within the dataset.



An additional 89 routes partially covered in the model have also been removed from the dataset. This is because it was felt that those routes are not represented significantly enough to enable us to be confident that the reported journey time changes would be representative of the impact on the whole route. In general, these are routes with less than approximately 7 KMs of the total route contained within the detailed model area (although some exceptions to this do exist based on case by case judgement). Many of the remaining routes reported are still not covered entirely by the detailed model area. However, based on case by case judgement, these results are included as only a small % of the route is not covered and it is felt that the results do represent the average potential impacts on the route as a whole. These routes are marked by an \* in the accompanying results tables.

### 3. General journey time change across the Borough

General journey time changes were measured in the original consultation documentation through three indicators:

1. The change in level of delay per vehicle kilometre travelled on the Borough network;
2. The average change in journey time per vehicle kilometre; and
3. The average speed through the Boroughs road network.

**Table 1 – Westminster Borough Level of Delay**

Delay per KM	Previous Scheme	Revised Scheme
AM	+24%	+22%
PM	+32%	+32%

**Table 2 – Westminster Borough Average Journey Times**

Average JT per KM	Previous Scheme	Revised Scheme
AM	+12%	+11%
PM	+17%	+17%

**Table 3 – Westminster Borough Average Speed**

Delay per KM (Secs)	Previous Scheme		Revised Scheme	
	Before	After	Before	After
AM	16.7	15.0	16.7	15.1
PM	15.6	13.3	15.6	13.4

#### 4. Bus journey time changes on Borough routes

The consultation documentation presented the impact on bus journey times for 148 bus routes which travel through the Westminster jurisdiction, the bus routes were categorised according to the magnitude of impact the scheme was modelled to have on end-to-end journey times. Journey time impacts for the same 148 bus routes have been extracted and categorised for the revised scheme modelling.

**Table 4 – ‘AM’ Peak Period Bus Route Impacts**

High Impact	Medium Impact	Low Impact	No/Negligible Impact
188 WB	12 SB*	16 SB*	1 EB
10 EB	13 NB*	171 SB*	10 WB
11 EB	185 SB*	18 WB*	137 SB*
11 WB	19 NB*	24 NB*	14 SB
12 NB*	242 WB*	24 SB*	159 SB*
13 SB*	243 NB*	26 NB	16 NB*
137 NB*	25 EB	3 SB*	170 WB*
139 NB*	360 EB	44 NB*	188 EB
139 SB*	360 WB	52 NB*	2 SB*
14 NB	38 NB*	521 EB	205 EB
148 EB	388 WB	521 WB	22 SB
148 WB	390 NB*	53 EB*	23 EB
15 EB	4 NB*	55 EB*	30 EB
15 WB	414 NB	6 NB*	31 SB
159 NB*	436 NB	73 SB*	36 SB*
168 NB*	46 EB*	87 SB	414 SB
168 SB*	6 SB*	9 WB	436 SB
170 EB*	70 NB*		44 SB*
171 NB*	8 WB		452 NB*
55 WB*	RV1 WB		59 SB*
172 SB*			7 EB*
176 SB*			73 NB*
18 EB*			74 SB
185 NB*			88 SB
1 WB			91 NB*
19 SB*			98 NB*
2 NB*			C1 WB
205 WB			C2 NB*
211 EB			RV1 EB
211 WB			
22 NB			
23 WB			
242 EB*			
243 SB*			
25 WB			
27 EB*			
27 WB*			
274 EB			
274 WB			
28 NB*			
28 SB*			
26 SB			
30 WB			
31 NB			
341 NB			
341 SB			
453 NB			

High Impact	Medium Impact	Low Impact	No/Negligible Impact
36 NB*			
38 SB*			
388 EB			
390 SB*			
4 SB*			
176 NB*			
452 SB*			
172 NB*			
453 SB			
46 WB*			
3 NB*			
507 EB			
507 WB			
52 SB*			
53 WB*			
59 NB*			
68 NB*			
68 SB*			
70 SB*			
74 NB			
76 NB*			
76 SB*			
7WB			
8 EB			
87 NB			
88 NB			
9 EB			
91 SB*			
94 EB*			
94 WB*			
98 SB*			
C1 EB			
C10 EB			
C10 WB			
C2 SB*			

**Table 5 – ‘PM’ Peak Period Bus Route Impacts**

High Impact	Medium Impact	Low Impact	No Impact
1 EB	10 EB	14 NB	137 NB*
1 WB	14 SB	16 SB*	137 SB*
10 WB	16 NB*	170 EB*	159 SB*
11 EB	185 SB*	170 WB*	205 EB
11 WB	188 EB	18 WB*	28 SB*
12 NB*	19 NB*	22 NB	3 SB*
12 SB*	2 NB*	27 EB*	30 EB
13 NB*	2 SB*	27 WB*	31 SB
13 SB*	22 SB	30 WB	36 SB*
139 NB*	23 EB	388 WB	44 SB*
139 SB*	24 NB*	414 SB	46 EB*
148 EB	24 SB*	436 SB	7 EB*
148 WB	243 NB*	44 NB*	73 NB*
15 EB	274 EB	74 NB	73 SB*
15 WB	28 NB*	98 NB*	74 SB
159 NB*	390 NB*	C1 WB	8 WB
168 NB*	4 NB*	C2 NB*	88 NB

High Impact	Medium Impact	Low Impact	No Impact
168 SB*	414 NB		91 NB*
171 NB*	52 SB*		
171 SB*	7WB		
172 NB*	88 SB		
172 SB*	C2 SB*		
176 NB*			
176 SB*			
18 EB*			
185 NB*			
188 WB			
19 SB*			
205 WB			
211 EB			
211 WB			
23 WB			
242 EB*			
242 WB*			
243 SB*			
25 EB			
25 WB			
26 NB			
26 SB			
274 WB			
3 NB*			
31 NB			
341 NB			
341 SB			
36 NB*			
360 EB			
360 WB			
38 NB*			
38 SB*			
388 EB			
390 SB*			
4 SB*			
436 NB			
452 NB*			
452 SB*			
453 NB			
453 SB			
46 WB*			
507 EB			
507 WB			
52 NB*			
521 EB			
521 WB			
53 EB*			
53 WB*			
55 EB*			
55 WB*			
59 NB*			
59 SB*			
6 NB*			
6 SB*			
68 NB*			
68 SB*			

High Impact	Medium Impact	Low Impact	No Impact
70 NB*			
70 SB*			
76 NB*			
76 SB*			
8 EB			
87 NB			
87 SB			
9 EB			
9 WB			
91 SB*			
94 EB*			
94 WB*			
98 SB*			
C1 EB			
C10 EB			
C10 WB			
RV1 EB			
RV1 WB			

**5. Flow bundle analysis**

Flow bundle analysis was previously requested, from the revised scheme model, for two turns at the junction of Victoria Embankment and Westminster Bridge, the turns were:

- Left turn from Victoria Embankment to Westminster Bridge; and
- Right turn from Westminster Bridge to Victoria Embankment.

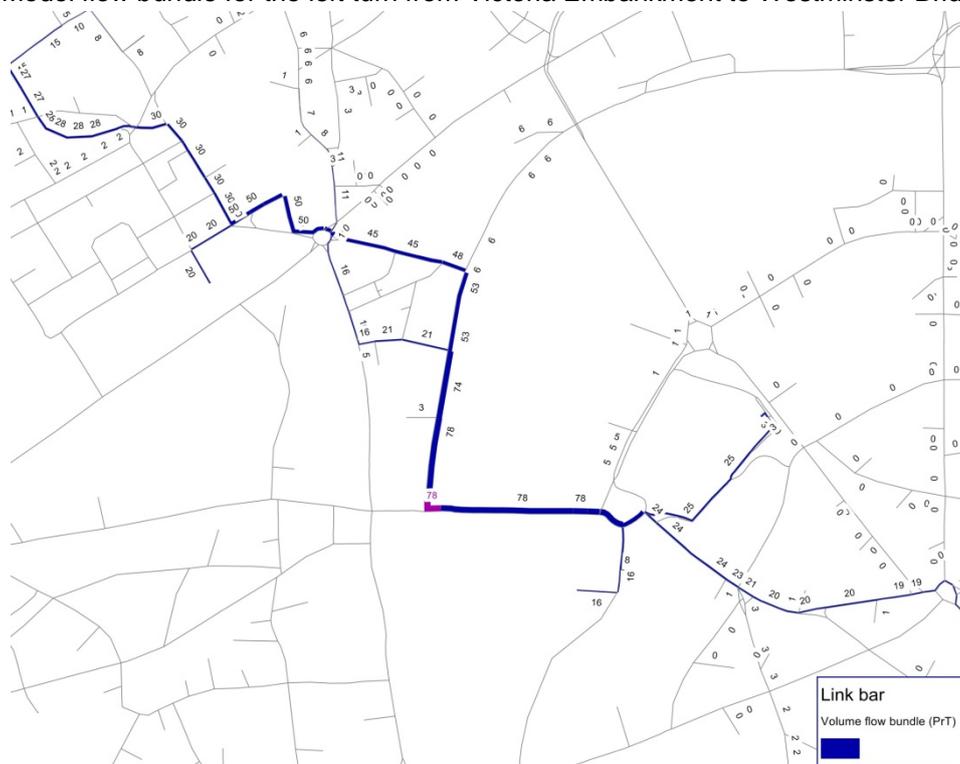
The scheme proposes to ban these turns therefore the flow bundles showed how many vehicles were using Parliament Square as a means of u-turning. The additional request was made to understand how many vehicles undertake the left- and right-turns in the Base model; further analysis from the model enables the reassignment of these trips between the Base Model and the Revised Scheme models to be investigated.

Flow bundles are carried out to gain a more detailed understanding of the reassignment patterns. This process involved firstly producing a flow bundle on the movement of interest, in the base model, then selecting the section of the demand matrix involving only the origins and destinations identified using the flow bundle. These trips could then be viewed in the Base situation to obtain a plot of all trips between those origins and destinations selected in the flow bundle. Trips between these same origins and destinations could also be highlighted in the revised scheme model, helping to identify where trips have reassigned to.

Figure 1i to Figure 4iii below step through the flow reassignment process for the AM and PM Peak periods.

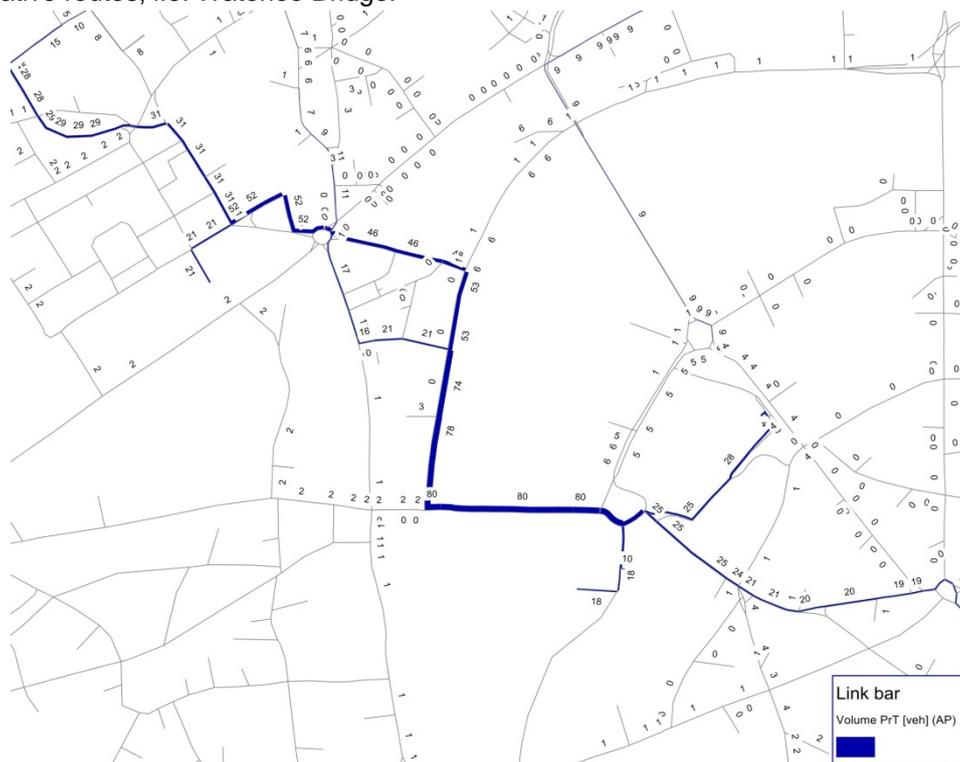
**Figure 1i – AM Peak: Base Model Left Turn (Victoria Embankment to Westminster Bridge)**

Base Model flow bundle for the left turn from Victoria Embankment to Westminster Bridge.



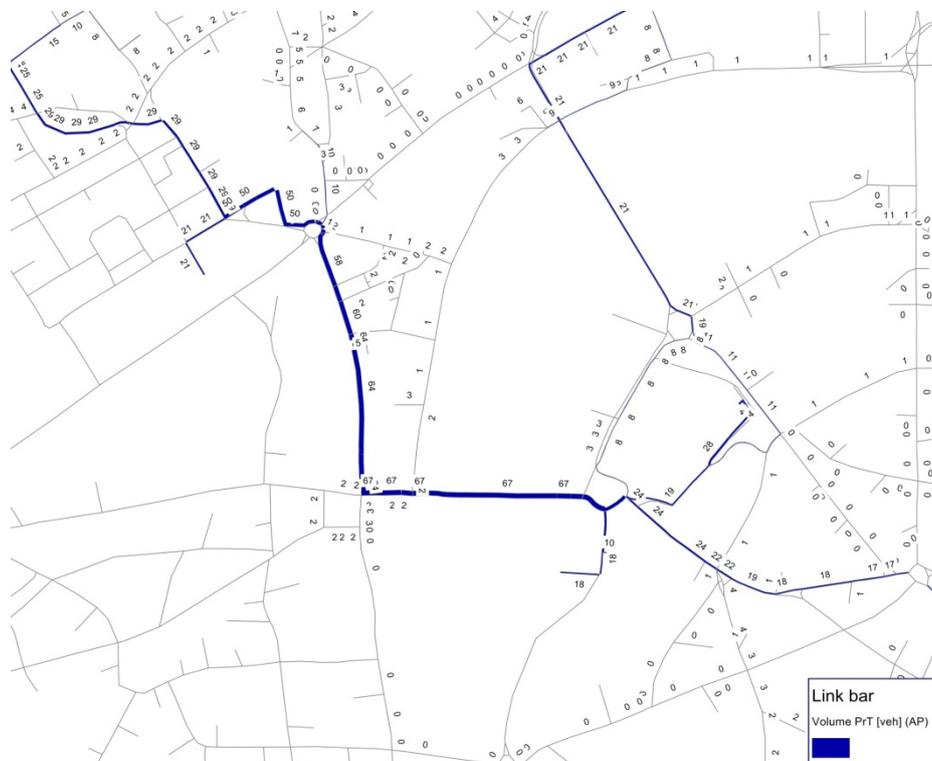
**Figure 1ii – AM Peak: Base Model all trips between flow bundle origin and destination pairs**

All trips between the flow bundle origin and destination pairs; it highlights trips using alternative routes, i.e. Waterloo Bridge.



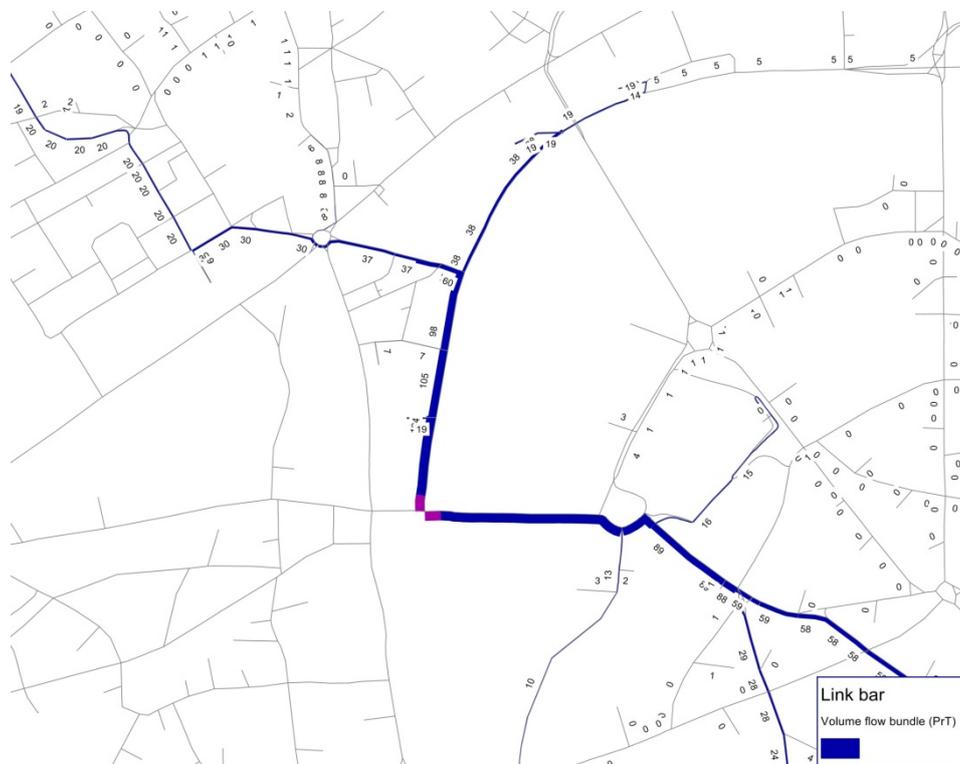
**Figure 1iii – AM Peak: Revised Scheme model reassignment of Base Model flow bundle trips**

The Base Model flow bundle origin and destination trips assigned to the revised scheme routes, highlights how trips reassign once the turns are closed.



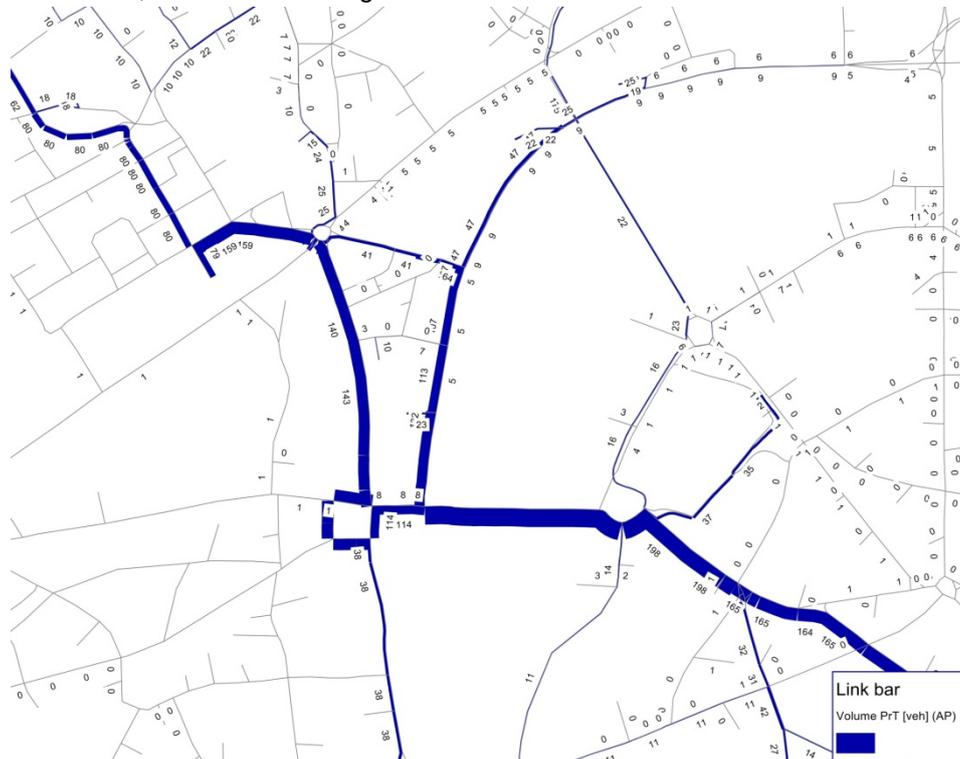
**Figure 2i – AM Peak: Base Model Right Turn (Westminster Bridge to Victoria Embankment)**

Base Model flow bundle for the right turn from Westminster Bridge to Victoria Embankment.



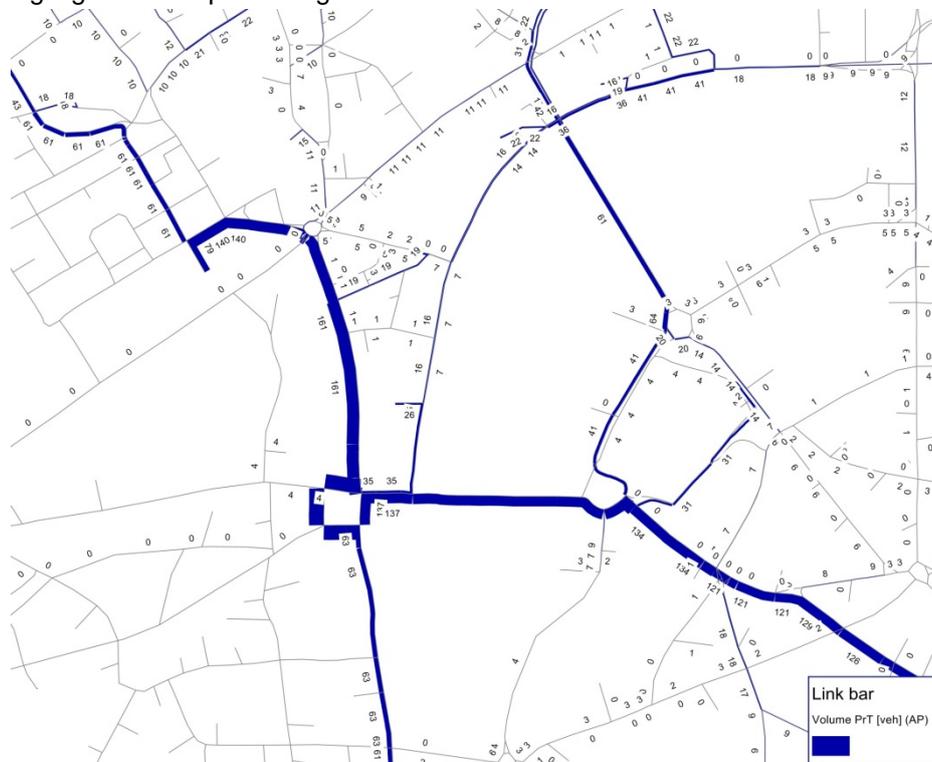
**Figure 2ii – AM Peak: Base Model all trips between flow bundle O-D pairs**

All trips between the flow bundle origin and destination pairs; it highlights trips using alternative routes, i.e. Waterloo Bridge.



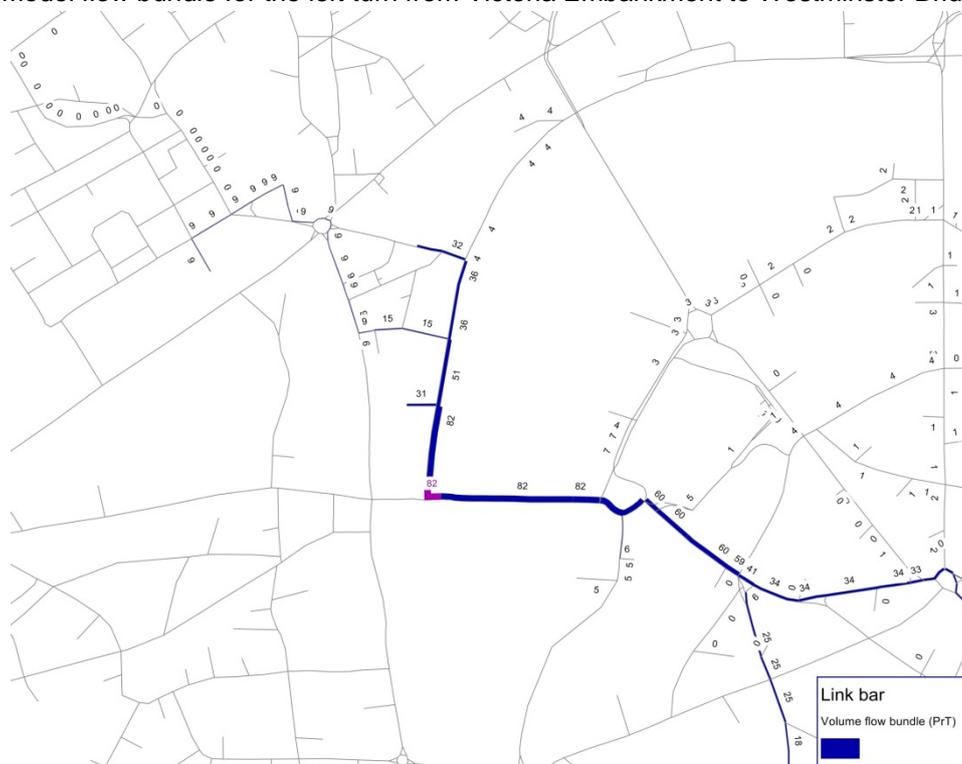
**Figure 2iii – AM Peak: Revised Scheme model reassignment of Base Model flow bundle trips**

The Base Model flow bundle origin and destination trips assigned to the revised scheme routes, highlights how trips reassign once the turns are closed.



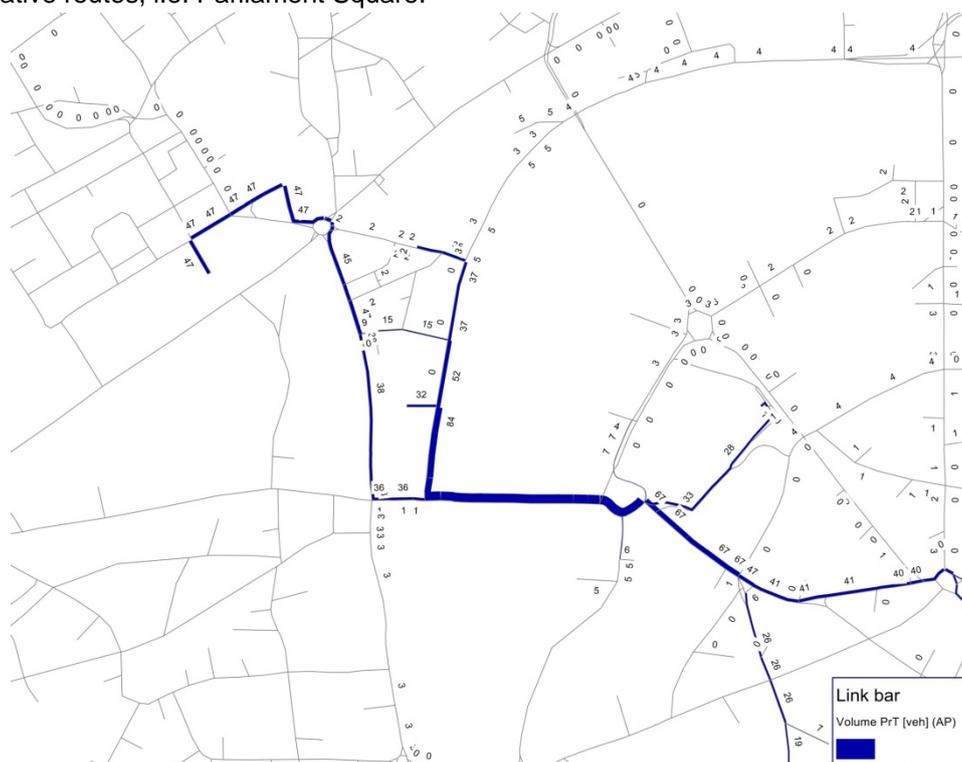
**Figure 3i – PM Peak: Base Model Left Turn (Victoria Embankment to Westminster Bridge)**

Base Model flow bundle for the left turn from Victoria Embankment to Westminster Bridge.



**Figure 3ii – PM Peak: Base Model all trips between flow bundle origin and destination pairs**

All trips between the flow bundle origin and destination pairs; it highlights trips using alternative routes, i.e. Parliament Square.



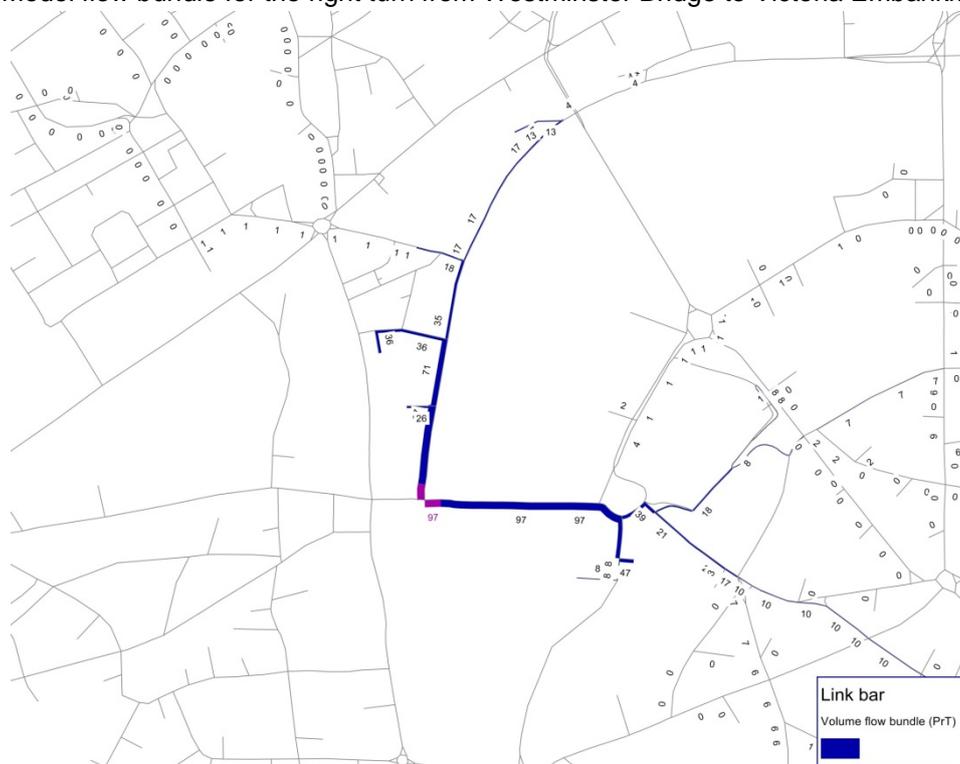
**Figure 3iii – PM Peak: Revised Scheme model reassignment of Base Model flow bundle trips**

The Base Model flow bundle origin and destination trips assigned to the revised scheme routes, highlights how trips reassign once the turns are closed.



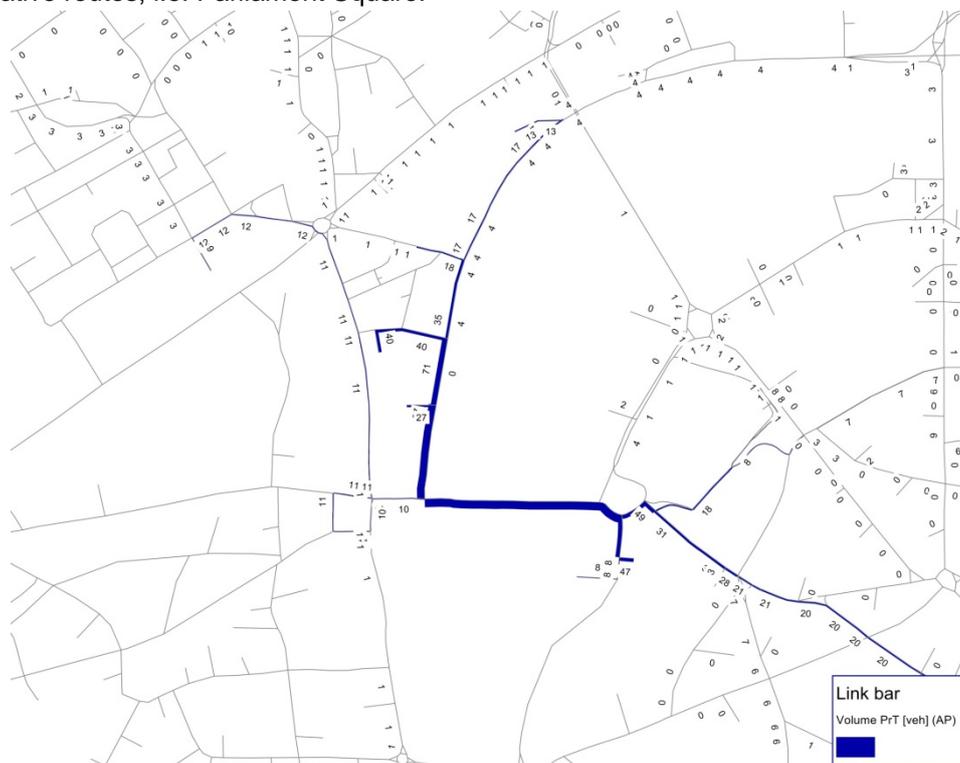
**Figure 4i – PM Peak: Base Model Right Turn (Westminster Bridge to Victoria Embankment)**

Base Model flow bundle for the right turn from Westminster Bridge to Victoria Embankment.



**Figure 4ii – PM Peak: Base Model all trips between flow bundle O-D pairs**

All trips between the flow bundle origin and destination pairs; it highlights trips using alternative routes, i.e. Parliament Square.



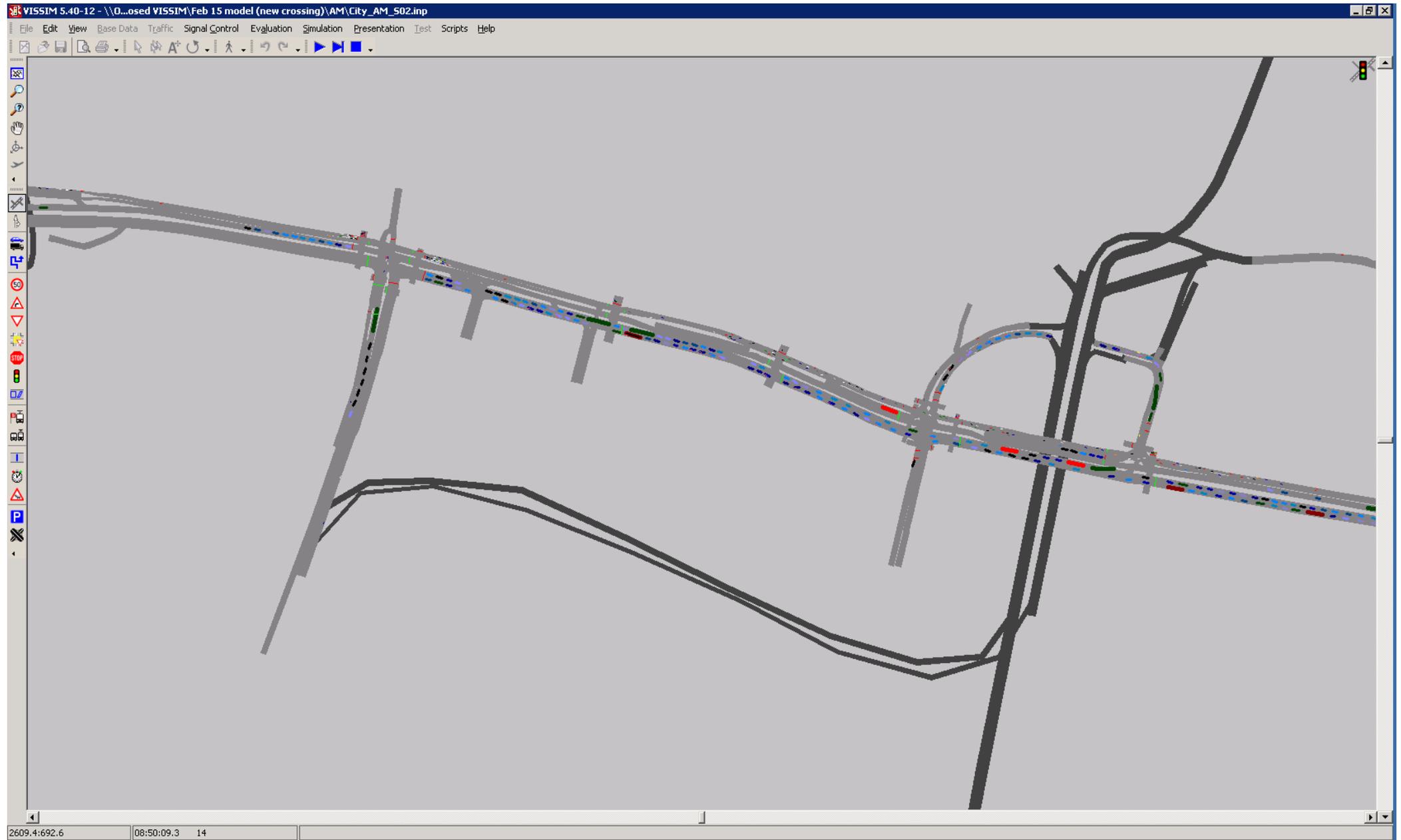


## APPENDIX C

TfL VISSIM screenshots

## EWCSH Screenshots

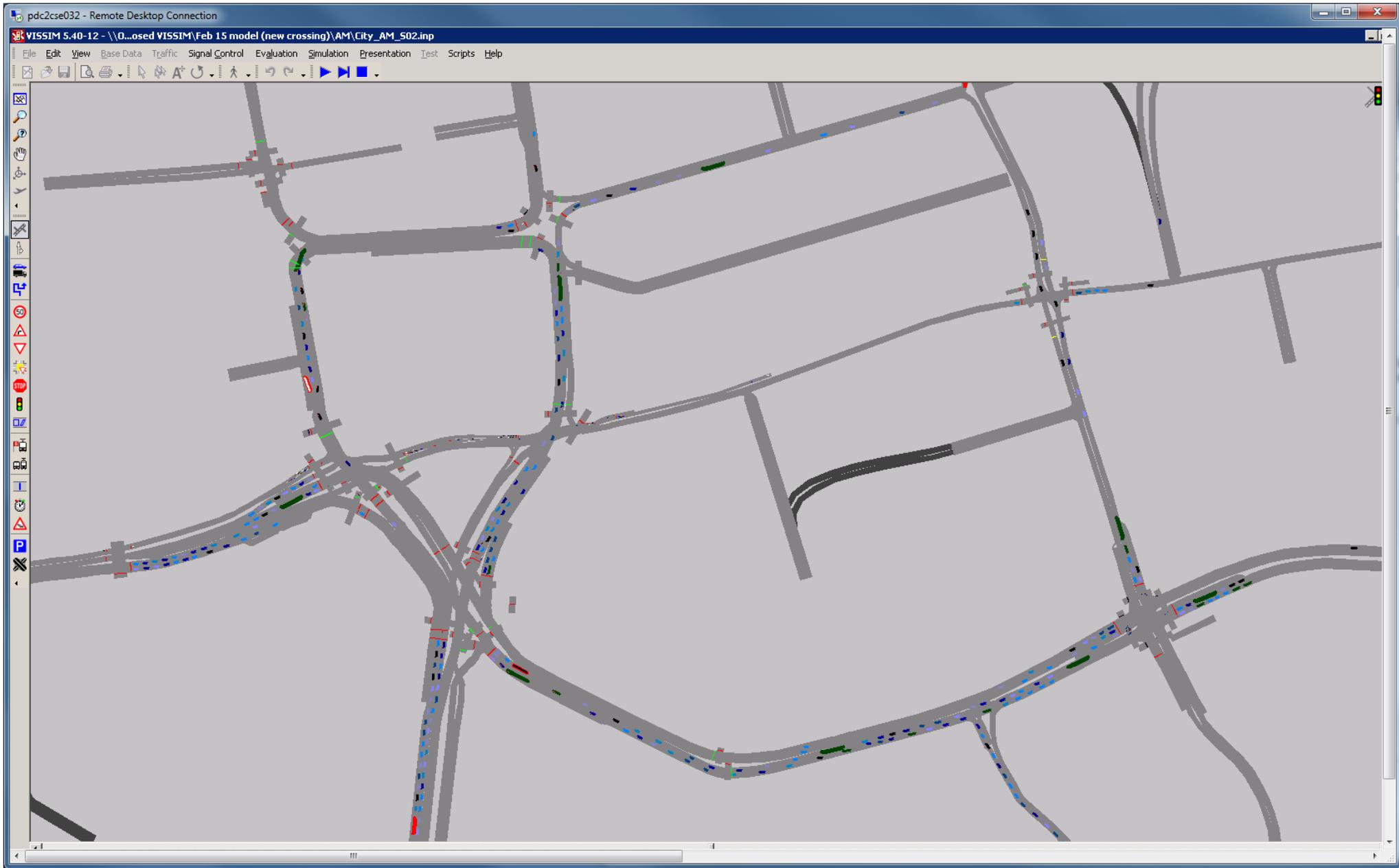
City E AM (including new design for pedestrian crossing by Tower Hill Station)

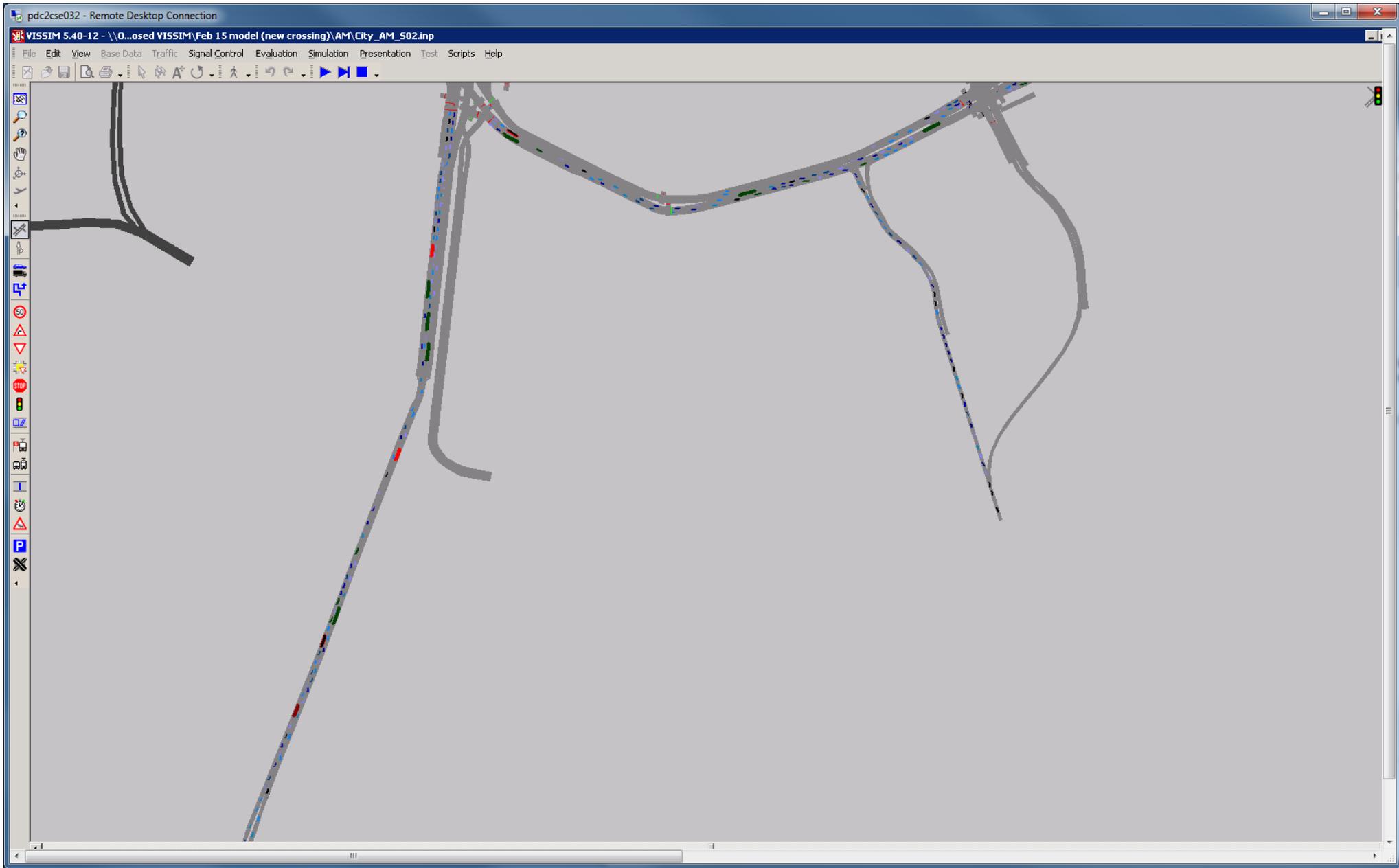


VISSIM 5.40-12 - \\0...osed VISSIM\Feb 15 model (new crossing)\AM\City\_AM\_502.inp

File Edit View Base Data Traffic Signal Control Evaluation Simulation Presentation Test Scripts Help

3499,7:868,2 08:50:09.3 14





VISSIM 5.40-12 - \\0...osed VISSIM\Feb 15 model (new crossing)\AM\City\_AM\_502.inp

File Edit View Base Data Traffic Signal Control Evaluation Simulation Presentation Test Scripts Help

4926.8;727.3 08:50:09.3 14

VISSIM 5.40-12 - \\0...osed VISSIM\Feb 15 model (new crossing)\AM\City\_AM\_502.inp

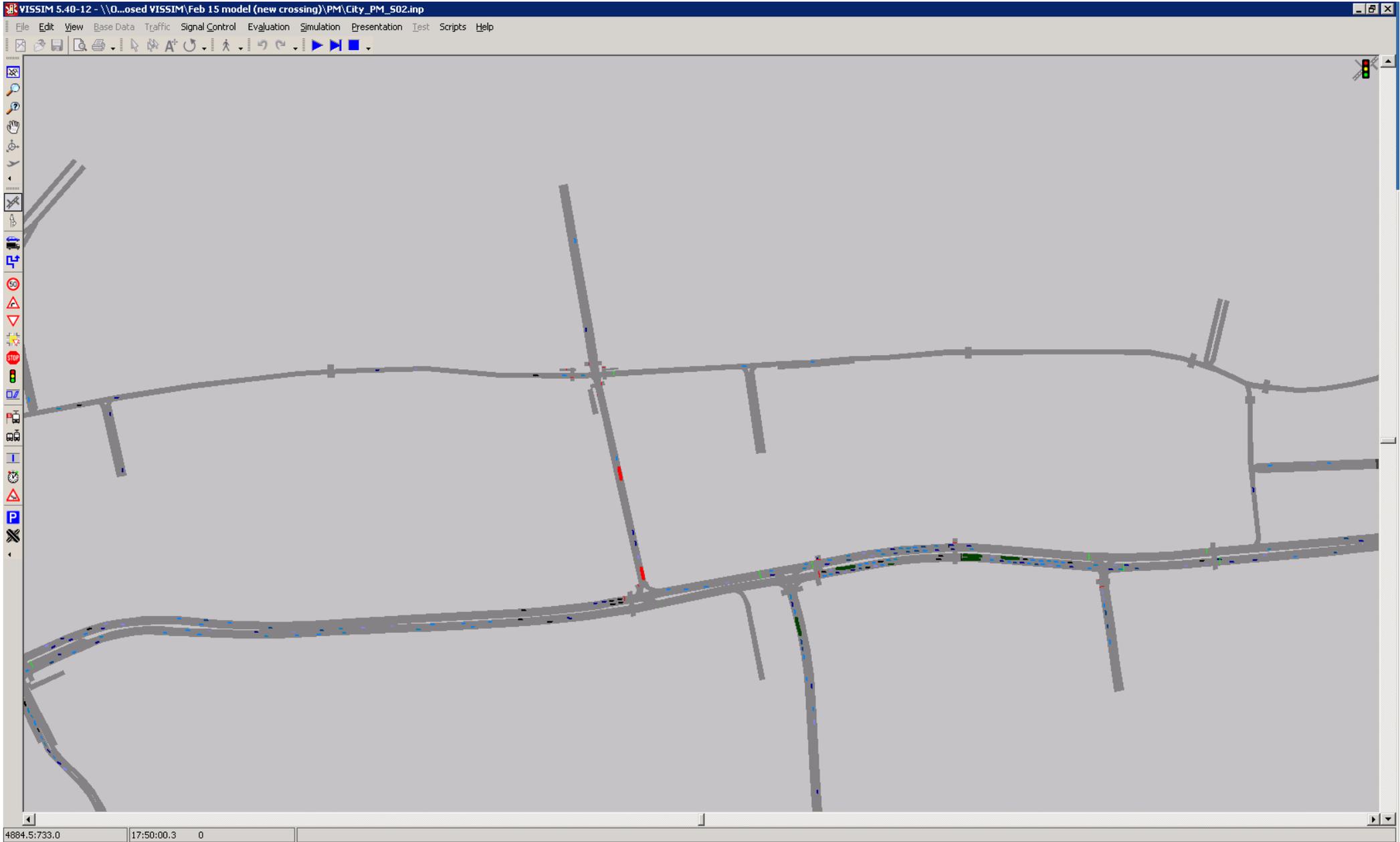
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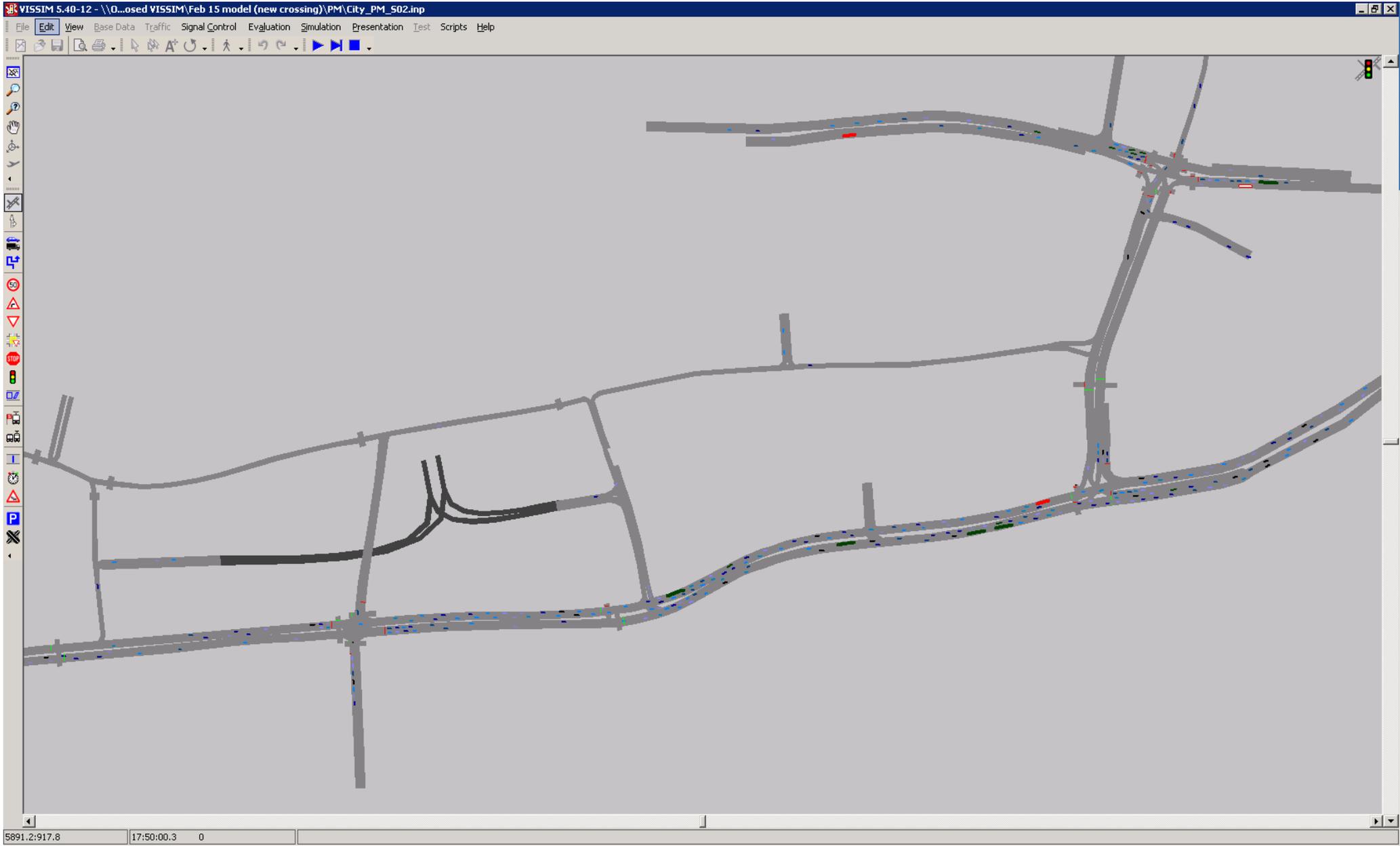
5898.5:658.4 08:50:09.3 14

City E PM (including new design for pedestrian crossing by Tower Hill Station)

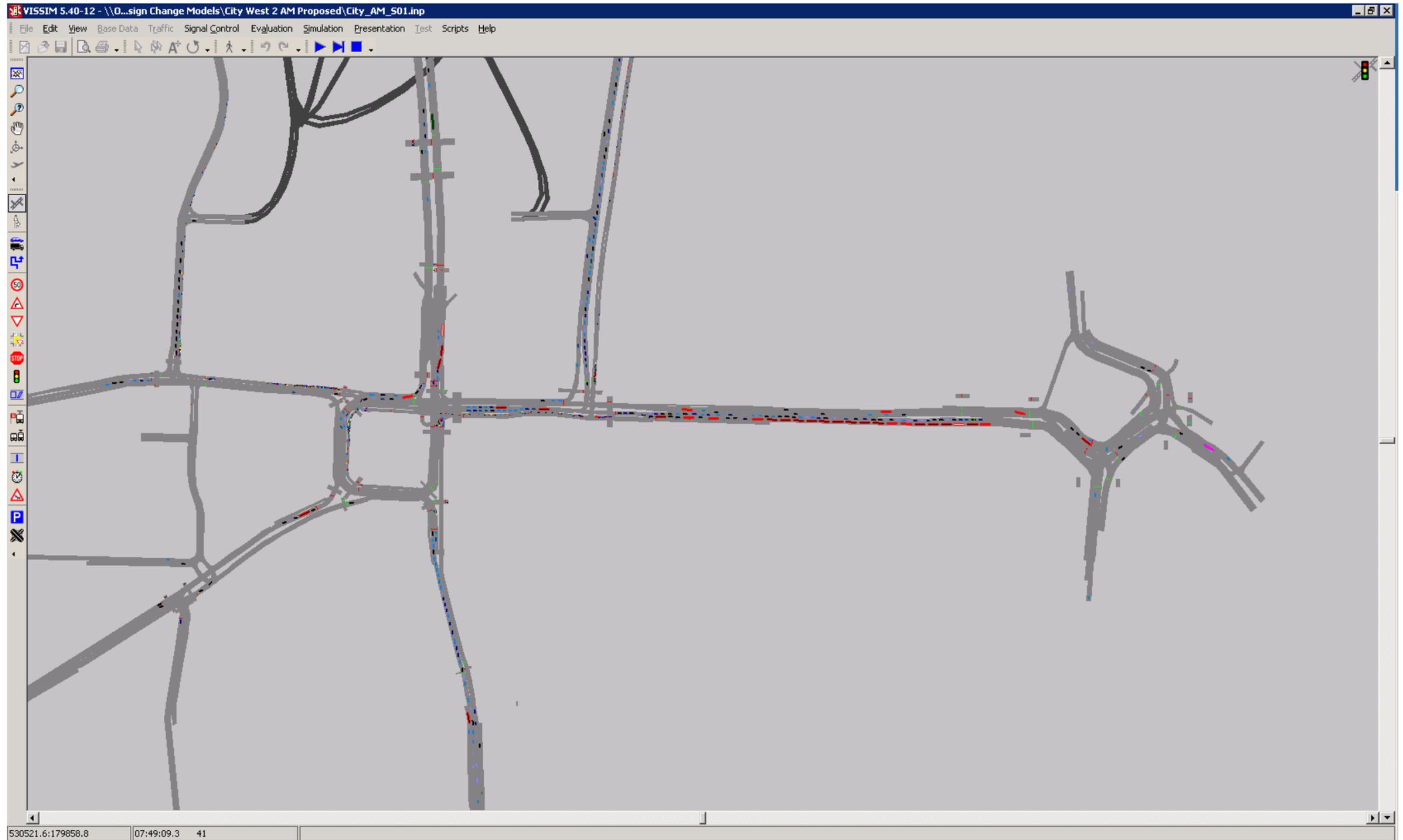


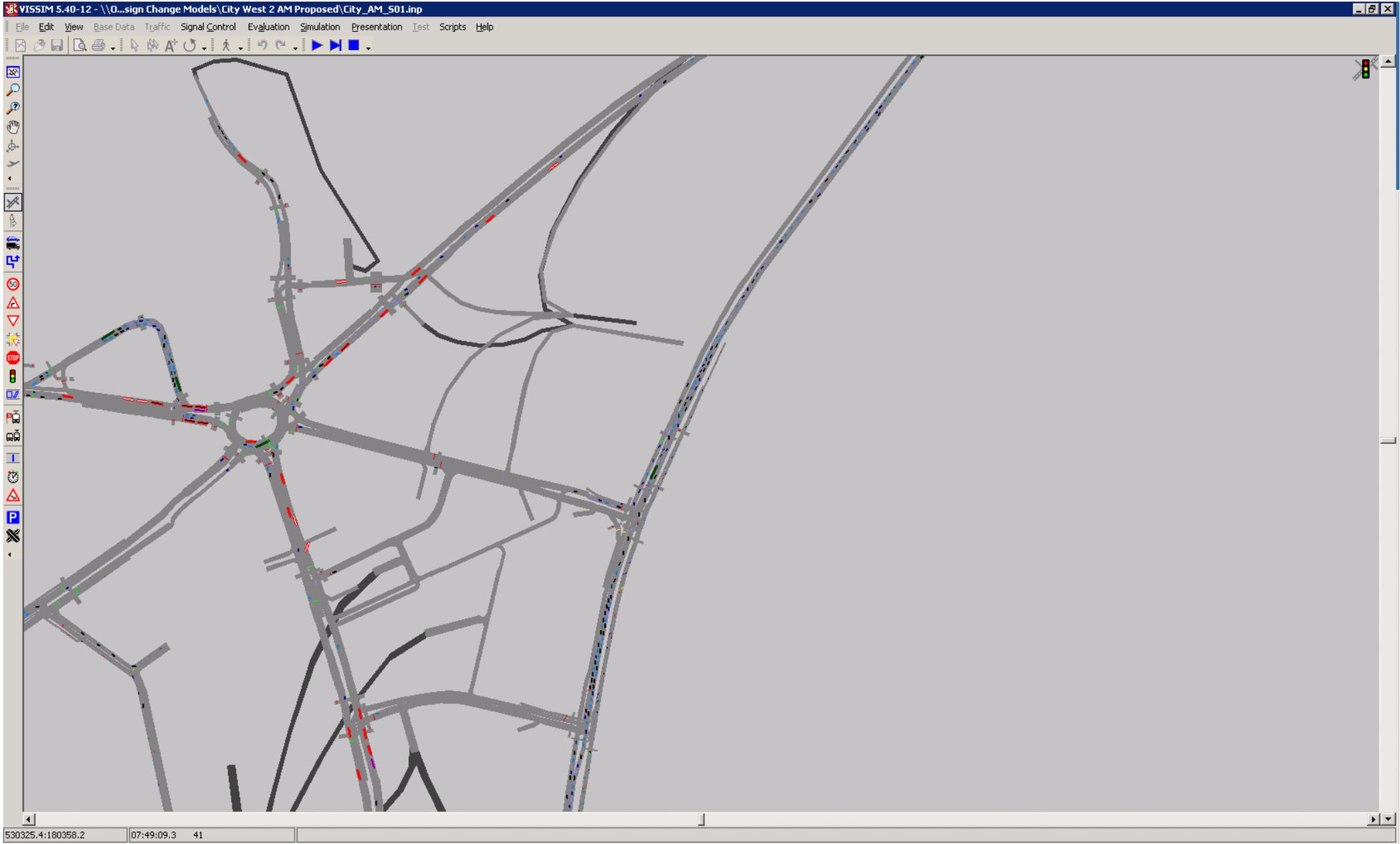


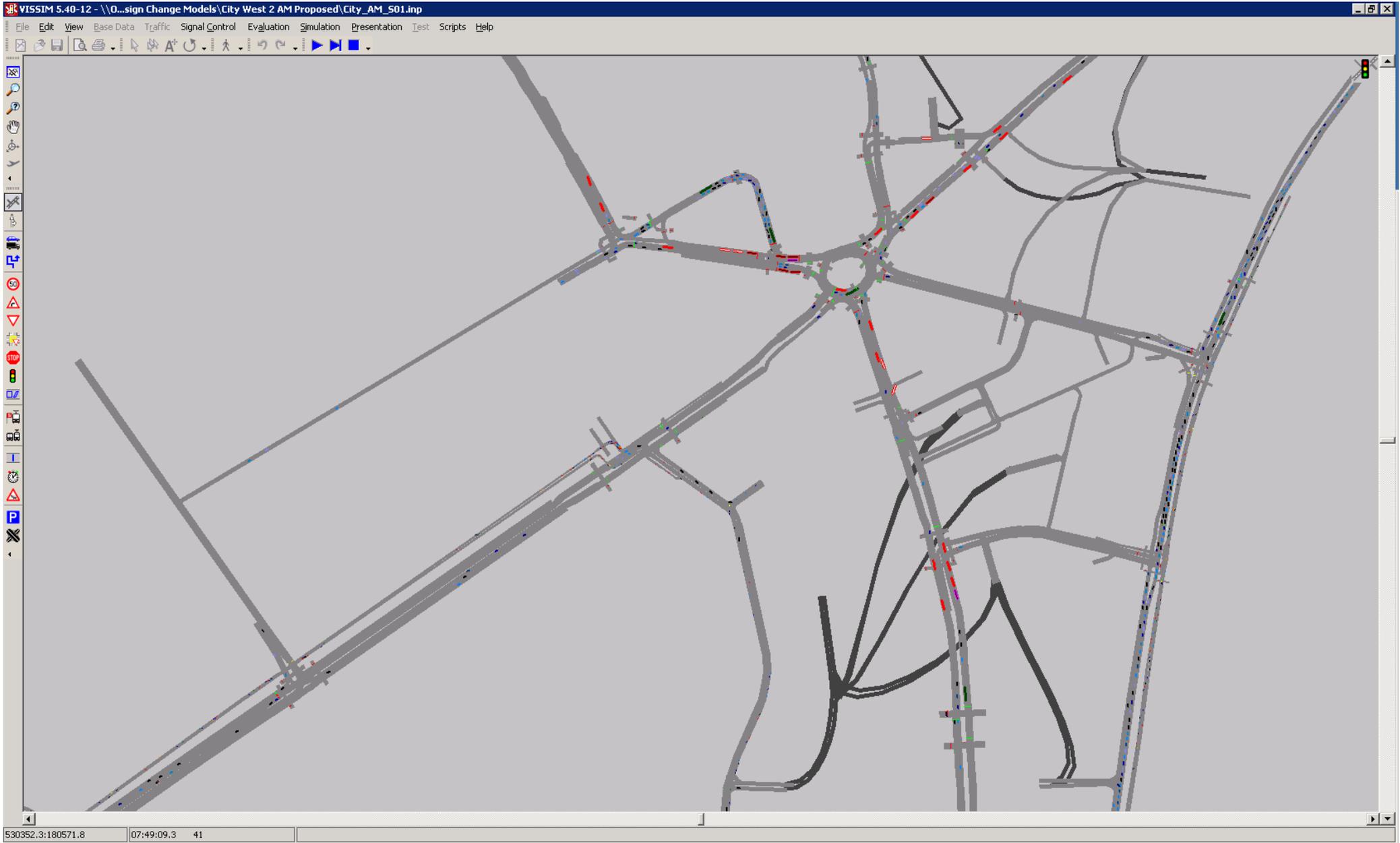


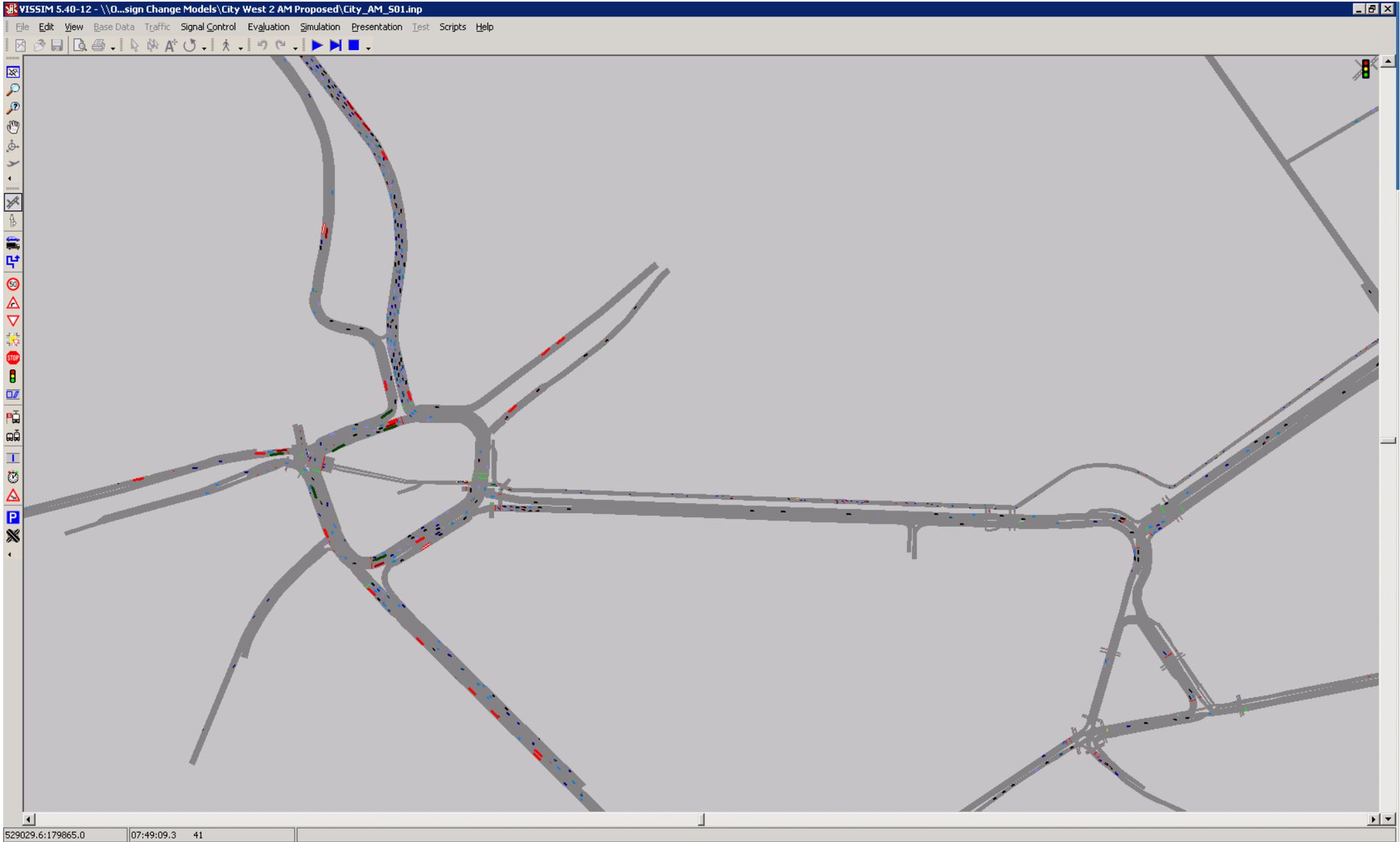


# City W2 AM

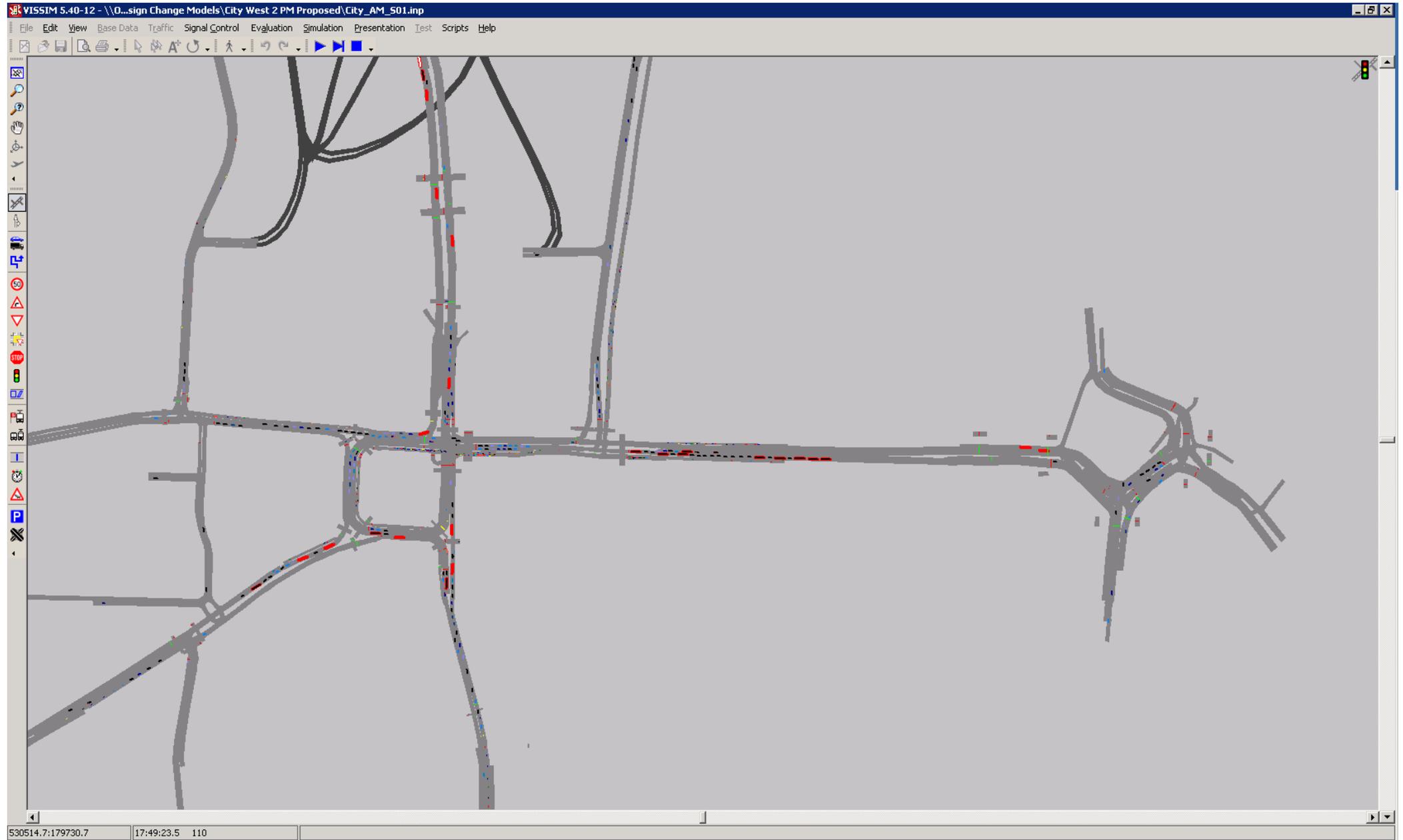


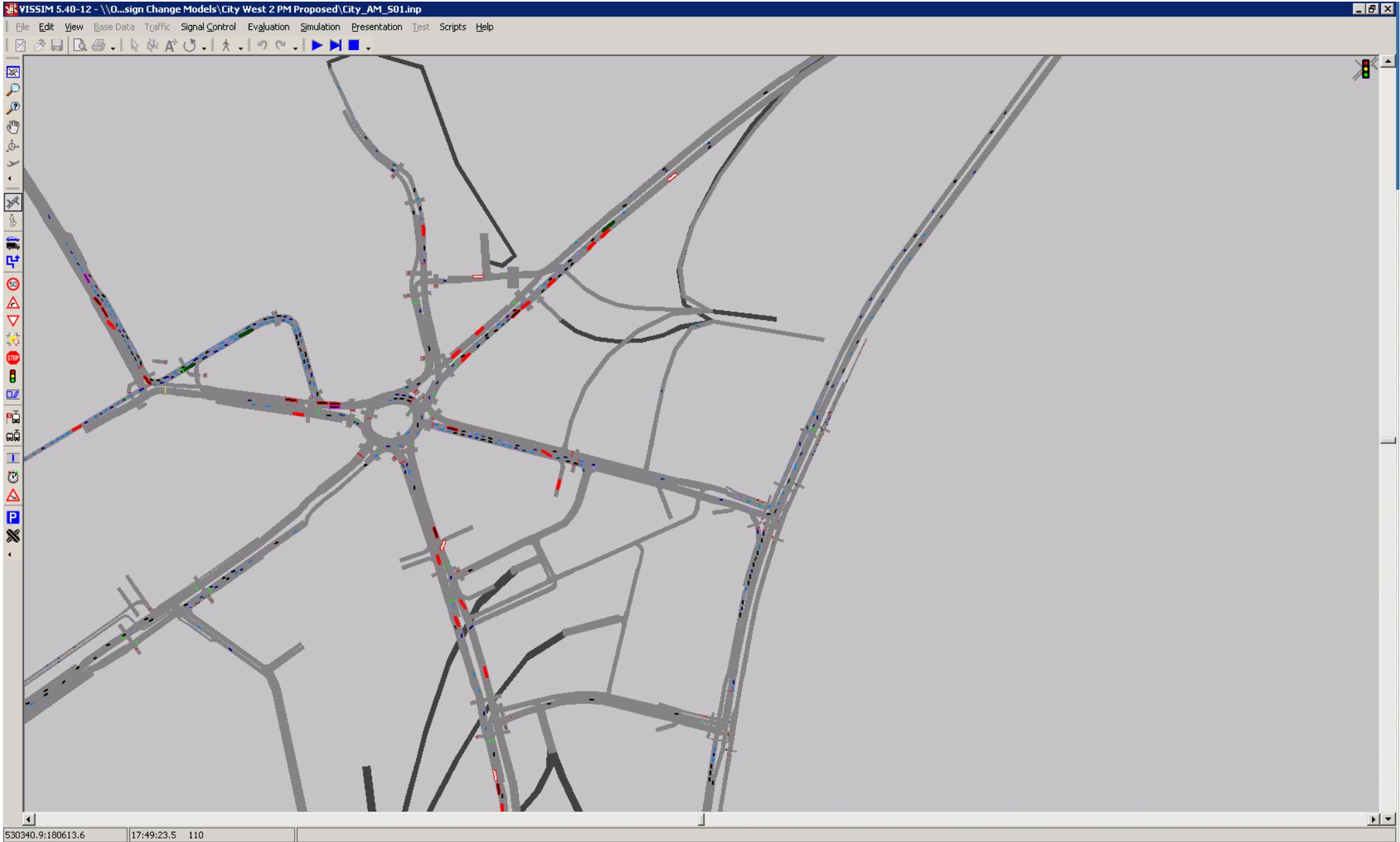






# City W2 PM

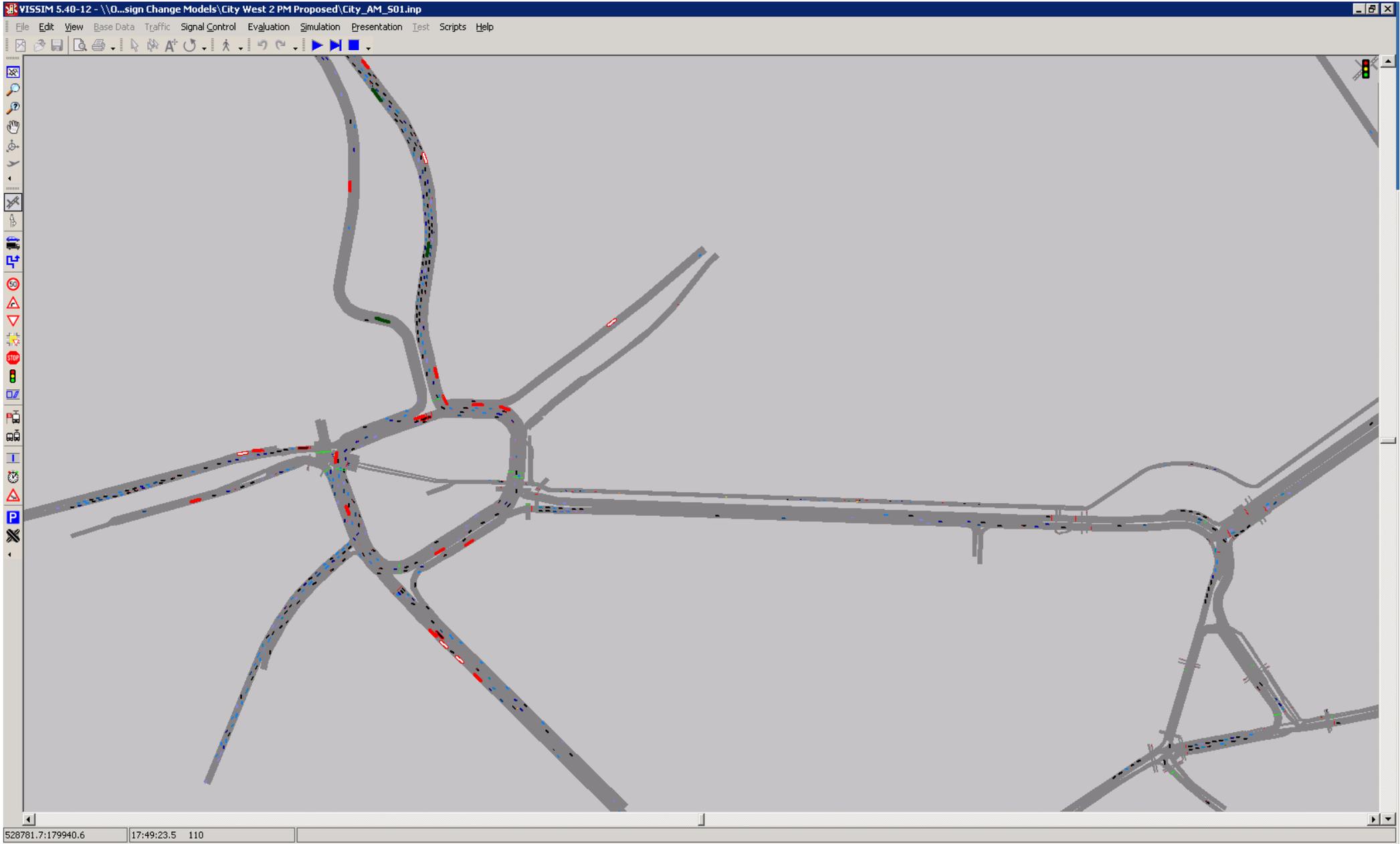




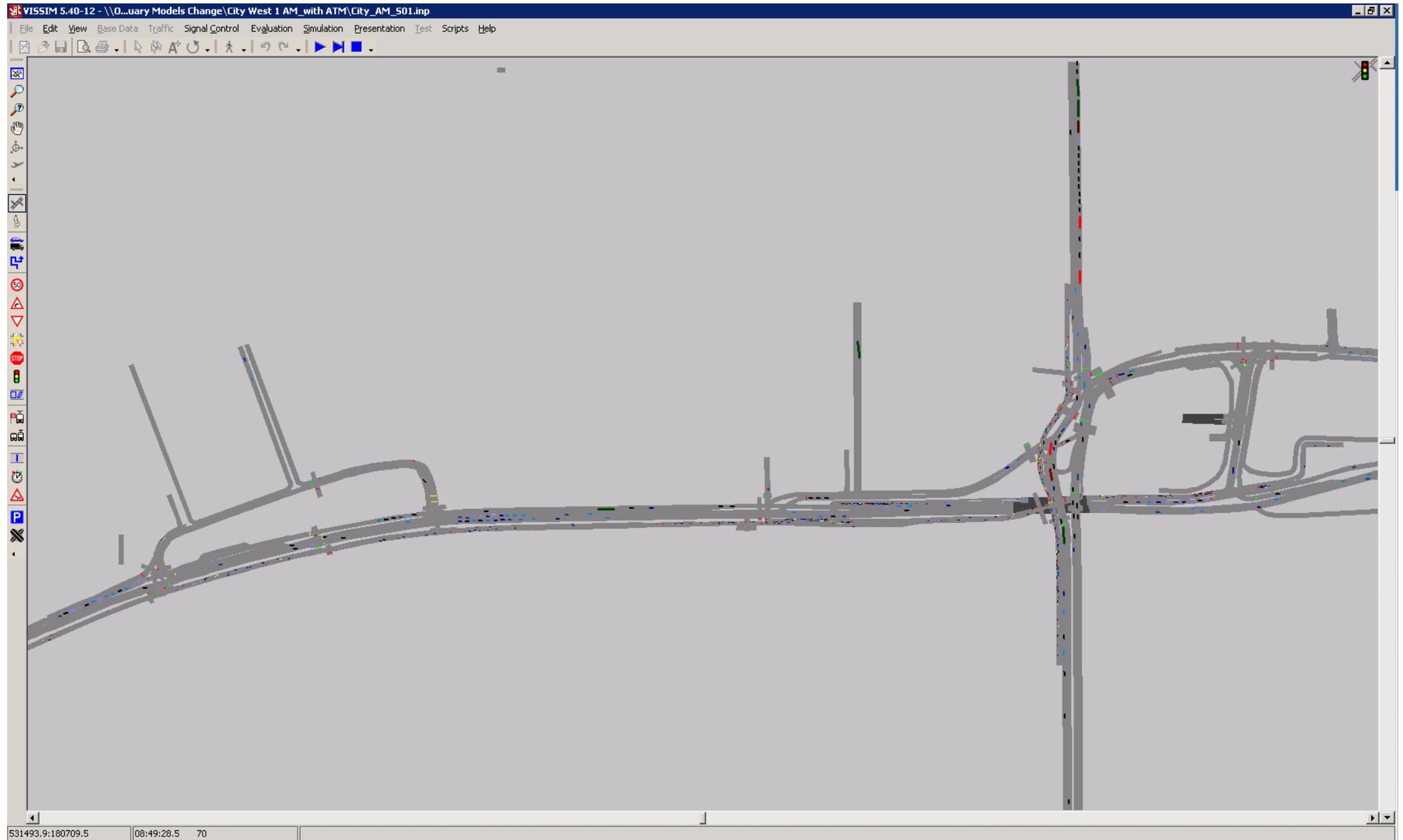
VISSIM 5.40-12 - \\D:\sign Change Models\City West 2 PM Proposed\City\_AM\_501.inp

File Edit View Base Data Traffic Signal Control Evaluation Simulation Presentation Test Scripts Help

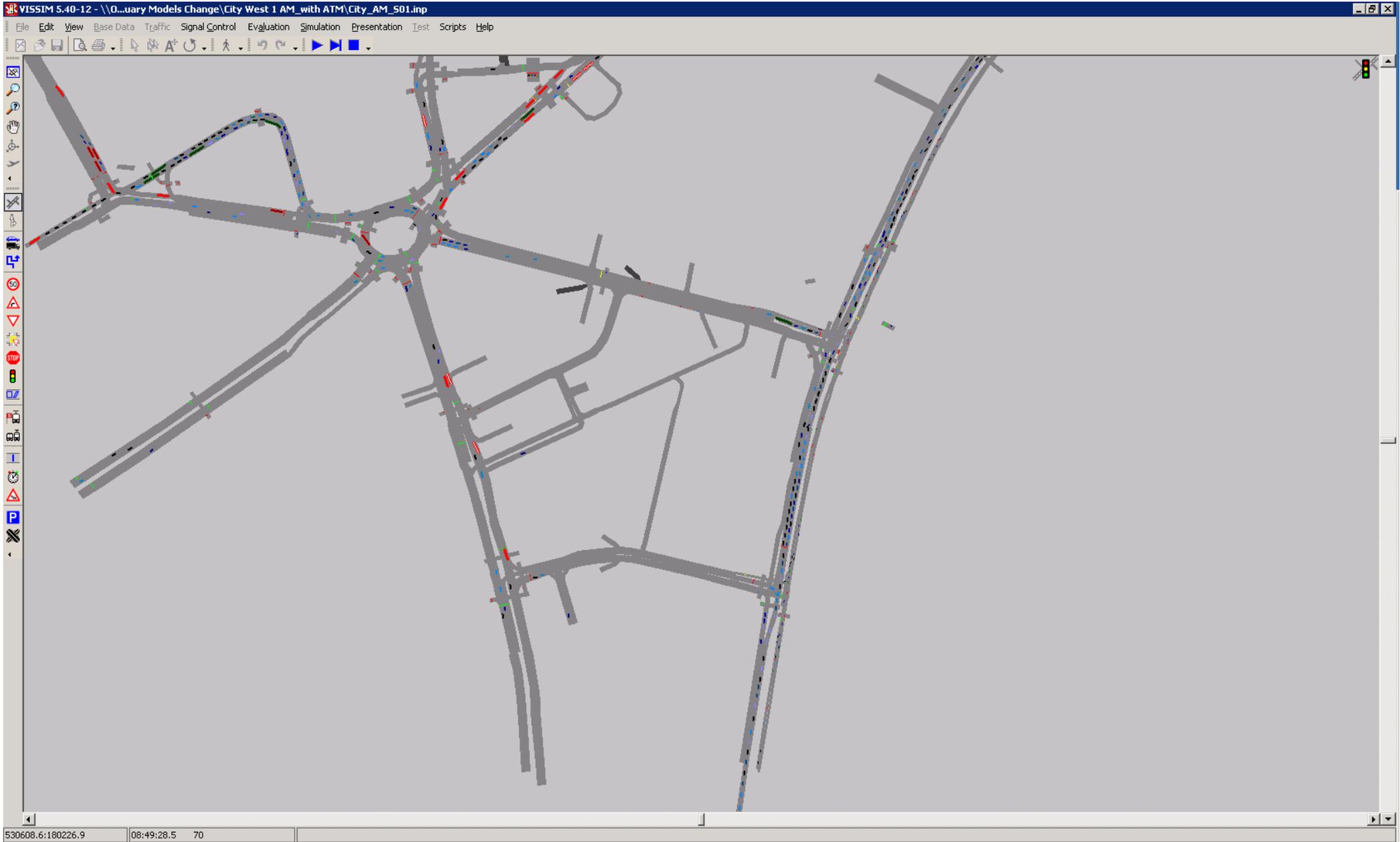
530000.3:180189.8 17:49:23.5 110



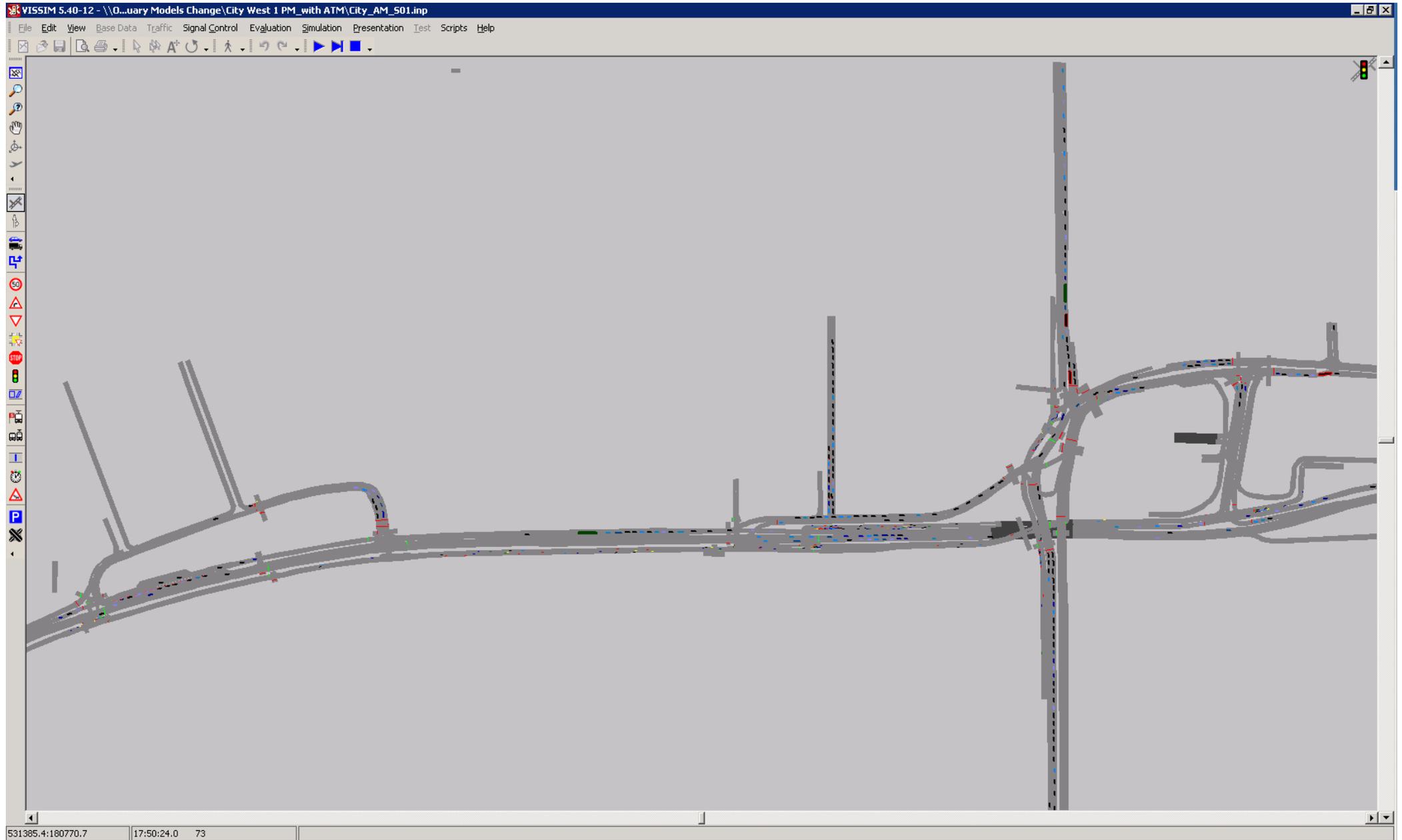
City W1 AM (including two westbound lane through Blackfriars Underpass)

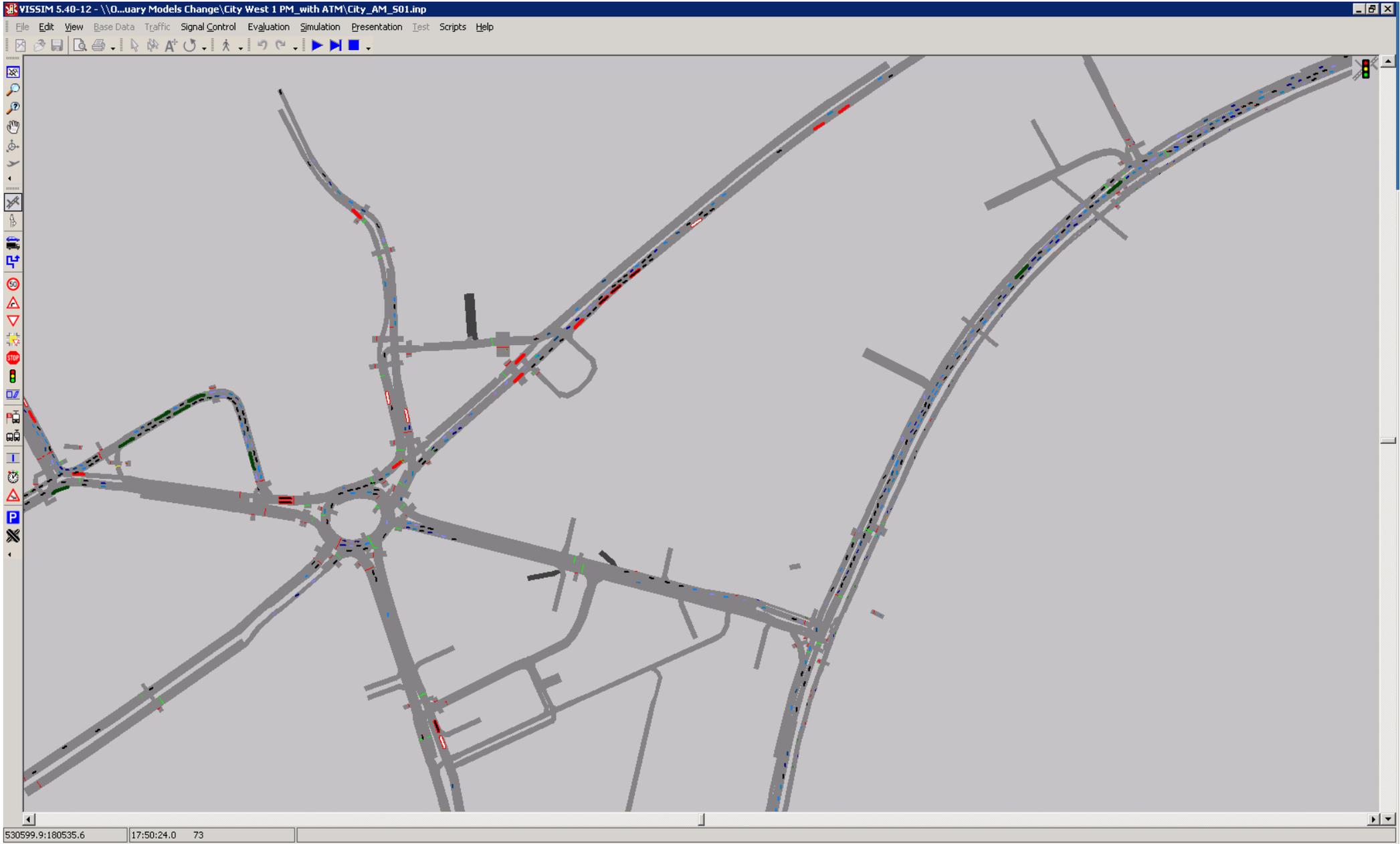


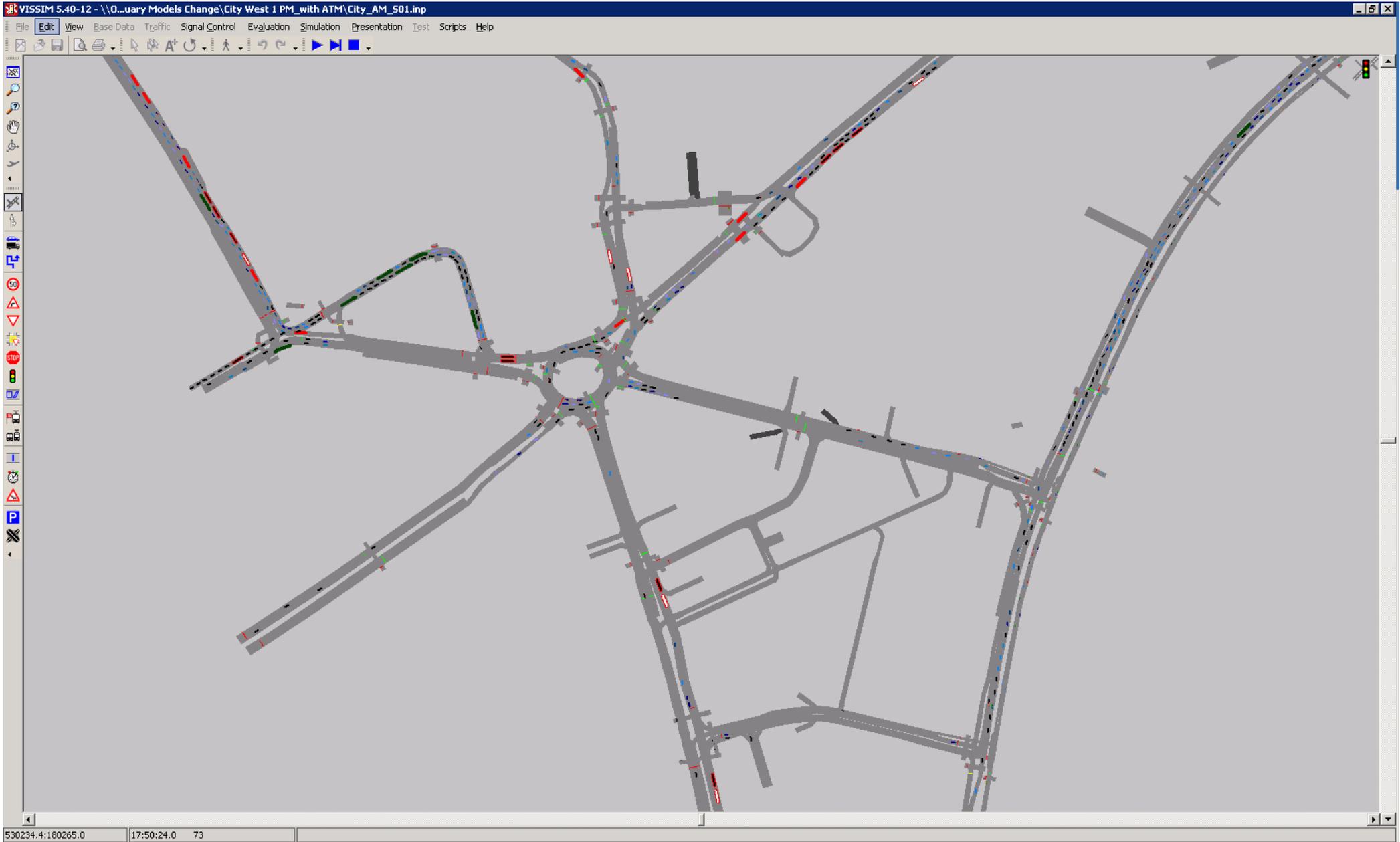




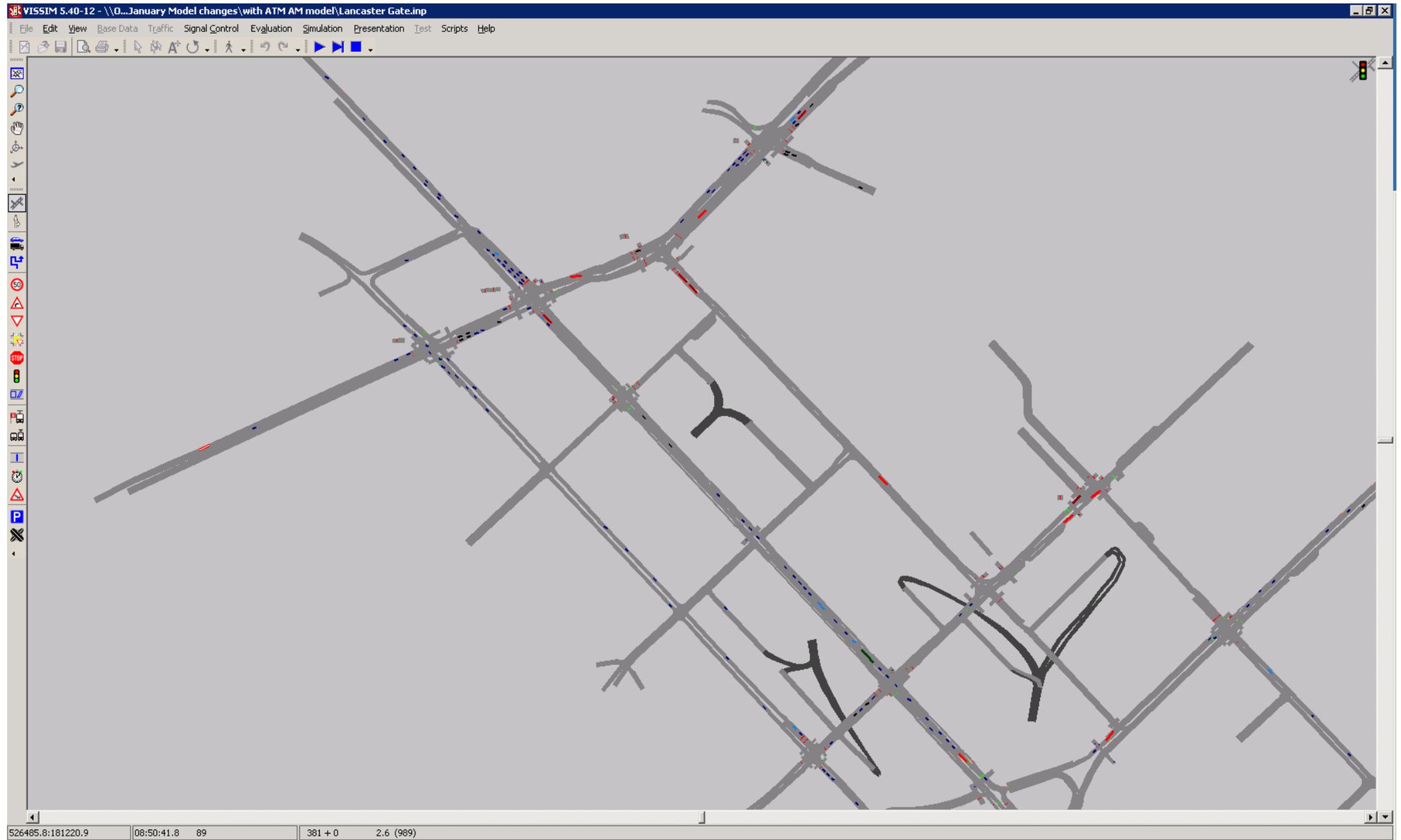
# City W1 PM (including two westbound lane through Blackfriars Underpass)





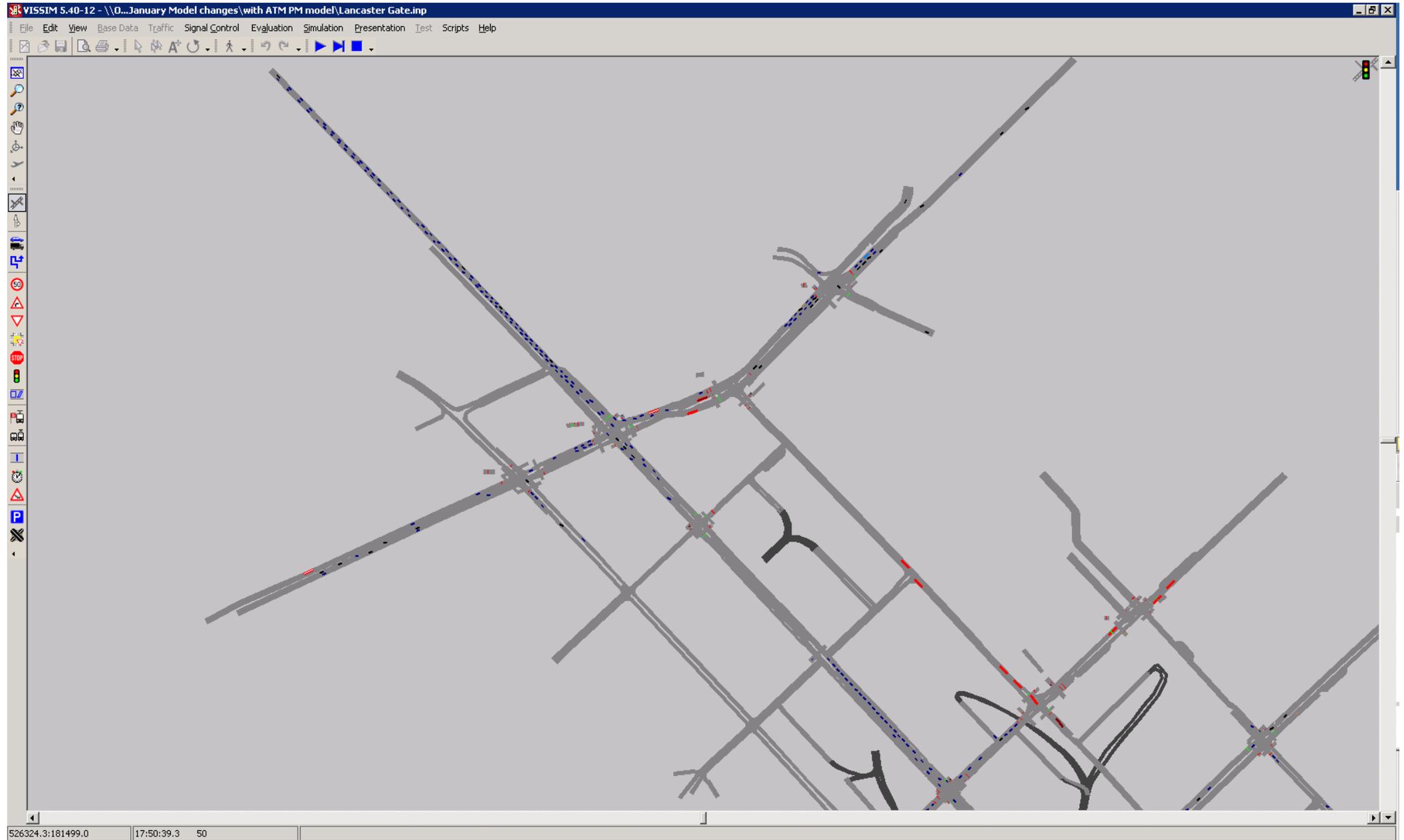


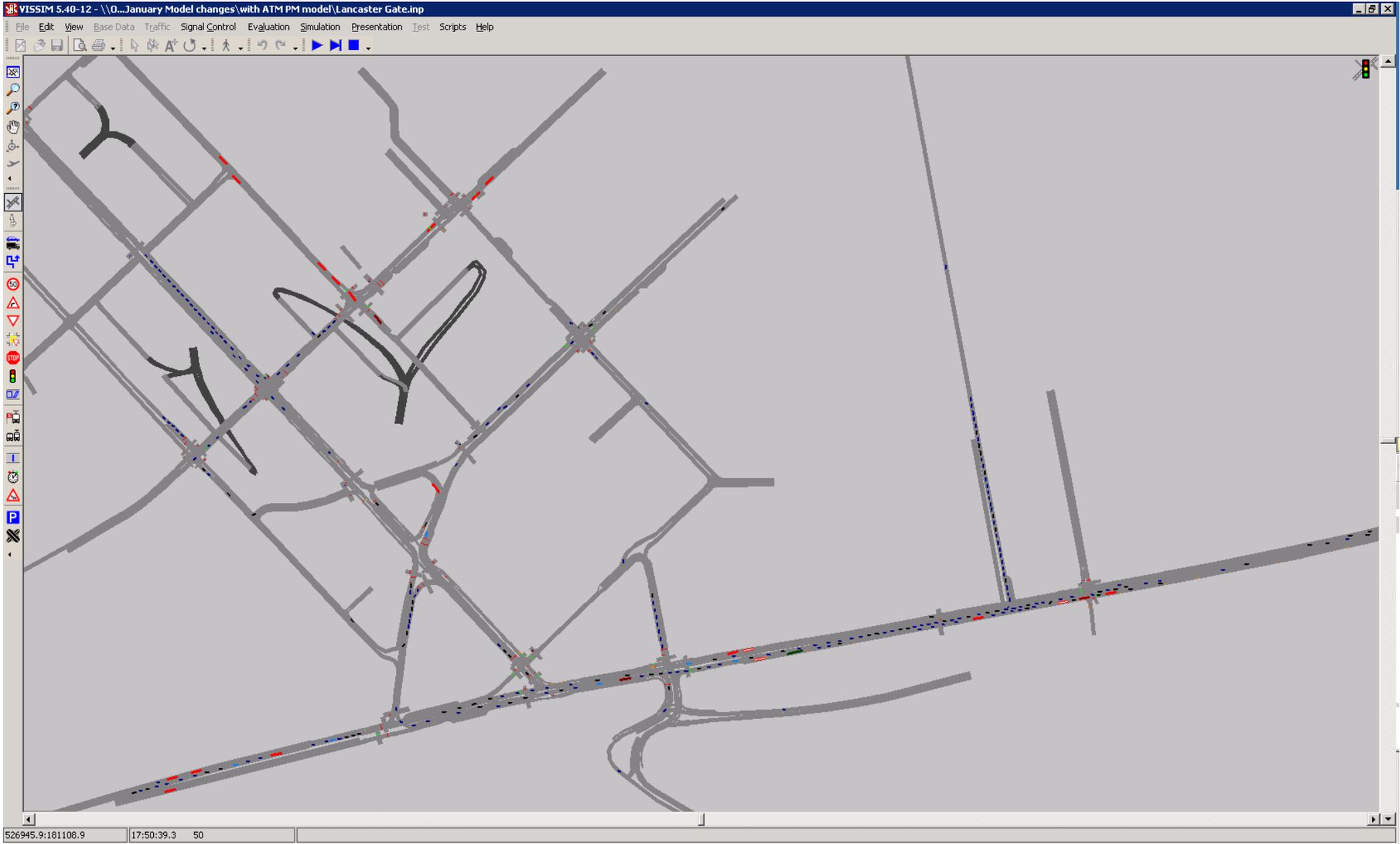
# Lancaster Gate AM





# Lancaster Gate PM





## APPENDIX D

### TfL Road Safety Audits

- D1 2021.04 - Audit Report Westbourne Terrace Loading Bay FINAL
- D2 2021.05 - Audit Report West DP1 and DP2 FINAL
- D3 2021 13 - Audit Report (Westbourne Terrace - MODIFIED LEFT TURNS) - FINAL
- D4 2021.17 - Audit Report (Lancaster Gate Alterations - post 1st consultation)

## Cycle Superhighways East-West Route

### West Section (DP1 and DP2)

Stage 1 Road Safety Audit

Ref: 2021.05/VAR/VAR/TLRN/2014

Prepared for:

**Cycle Superhighways Team**

By:

**Road Safety Audit, TfL Asset Management Directorate**

Prepared by: Andrew Coventry, Audit Team Leader

Checked by: Anya Bownes, Audit Team Member

Approved by: Shane Martin

Version	Status	Date
A	Audit report issued to Client	11/06/2014

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## **1.0 INTRODUCTION**

### **1.1 Commission**

- 1.1.1 This report results from a Stage 1 Road Safety Audit carried out on the Cycle Superhighways East-West Route, West Section (DP1 and DP2) proposals.
- 1.1.2 The Audit was undertaken by TfL Road Safety Audit in accordance with the Audit Brief issued by the Client Organisation on 1<sup>st</sup> April 2014. It took place at the Palestra offices of TfL on 6<sup>th</sup> June 2014 and comprised an examination of the documents provided as listed in Appendix A, plus a visit to the site of the proposed scheme.
- 1.1.3 The visit to the site of the proposed scheme was made on 6<sup>th</sup> June 2014. During the site visit the weather was sunny and the existing road surface was dry.

### **1.2 Terms of Reference**

- 1.2.1 The Terms of Reference of this Audit are as described in TfL Procedure SQA-0170 dated May 2014. The Audit Team has examined and reported only on the road safety implications of the scheme as presented and how it impacts on all road users and has not examined or verified the compliance of the designs to any other criteria. However, to clearly explain a safety problem or the recommendation to resolve a problem the Audit Team may, on occasion, have referred to a design standard without touching on technical audit. An absence of comment relating to specific road users / modes in Section 3 of this report does not imply that they have not been considered; instead the Audit Team feels they are not adversely affected by the proposed changes.
- 1.2.2 This Safety Audit is not intended to identify pre-existing hazards which remain unchanged due to the proposals; hence they will not be raised in Section 3 of this report as they fall outside the remit of Road Safety Audit in general as specified in the procedure SQA-0170 dated May 2014. Safety issues identified during the Audit and site visit that are considered to be outside the Terms of Reference, but which the Audit Team wishes to draw to the attention of the Client Organisation, are set out in Section 4 of this report.
- 1.2.3 Nothing in this Audit should be regarded as a direct instruction to include or remove a measure from within the scheme. Responsibility for designing the scheme lies with the Designer and as such the Audit Team accepts no design responsibility for any changes made to the scheme as a result of this Audit.
- 1.2.4 In accordance with TfL Procedure SQA-0170 dated May 2014, this Audit has a maximum shelf life of 2 years. If the scheme does not progress to the next stage in its development within this period, then the scheme should be re-audited.
- 1.2.5 Unless general to the scheme, all comments and recommendations are referenced to the detailed design drawings and the locations have been indicated on the plan located in Appendix B.
- 1.2.6 It is the responsibility of the Design Organisation to complete the Designer's response section of this Audit report. Where applicable and necessary it is the responsibility of the Client Organisation to complete the Client comment section of this Audit report. Signatures from both the Design Organisation and Client Organisation must be added within Section 5 of this Audit report. A copy of which must be returned to the Audit Team.

### **1.3 Main Parties to the Audit**

#### 1.3.1 Client Organisation

Client contact details: Sarah Turnbull - Road Space Management Directorate

#### 1.3.2 Design Organisation

Design contact details: Gillian Norburn - Road Space Management Directorate

#### 1.3.3 Audit Team

Audit Team Leader: Andrew Coventry – TfL Road Safety Audit

Audit Team Member: Anya Bownes – TfL Road Safety Audit

Audit Team Observer: None present

#### 1.3.4 Other Specialist Advisors

Specialist Advisor Details: None present

### **1.4 Purpose of the Scheme**

1.4.1 The purpose of the scheme is to provide a Cycle Superhighways route (West Section) linking Hyde Park to Westbourne Bridge by Orsett Terrace\*.

\*Taken directly from the Audit Brief.

### **1.5 Special Considerations**

1.5.1 The Audit Team has no special considerations to raise.

## **2.0 ITEMS RAISED IN PREVIOUS ROAD SAFETY AUDITS**

The Audit Team is not aware of any other Audits having been carried out on the proposals.

### 3.0 ITEMS RAISED AT THIS STAGE 1 ROAD SAFETY AUDIT

This section should be read in conjunction with Paragraphs 1.2.1, 1.2.2 and 1.2.3 of this report.

#### 3.1 CYCLE FACILITIES

##### 3.1.1 PROBLEM

**Location:** General to scheme, multiple locations

**Summary:** Layout exposes cyclists to potential for 'left hook' conflicts

The Audit Team is concerned that the proposals encourage cyclists to adopt a position to the nearside of vehicles, on the approach to a signalised junction. Encouraging cyclists to adopt a position to the nearside may expose them to a potential for 'left hook' type conflicts, particularly by larger vehicles with reduced sideways visibility such as heavy goods vehicles. This was noted at the following locations:

- Westbourne Terrace (northbound) junction with Bishops Bridge Road
- Westbourne Terrace (northbound) junction with Cleveland Terrace
- Westbourne Terrace (southbound) junction with Cleveland Terrace
- Westbourne Terrace (northbound) junction with Craven Road
- Westbourne Terrace (southbound) junction with Craven Road

An exacerbated potential for conflict between cyclists and motorists may exist as a result.

It is appreciated that the absence of cycle facilities in the existing arrangement exposes cyclists to the same conflict.

##### RECOMMENDATION

Modify the layout of the junction to reduce the potential for conflict, this may require encouraging cyclists to adopt a position to the front of vehicles when waiting at the stop-line to maximise their visibility. It may also be beneficial to modify the layout of the approach to reduce the potential for conflict under free flow conditions, such as encouraging cyclists to adopt a more assertive position.

Design Organisation Response	Accepted / Part Accepted / Rejected
<p>These junctions were re-designed as a result of this comment and the revised layouts presented for audit. The results of this audit are presented in Road Safety Audit Ref: 2021.13/001/UNC/TLRN/2014. In the new audit the Problem had been downgraded to an Issue and the following statement made: 'The Audit Team notes that the junction in its current arrangement encourages cyclists to adopt a position to the nearside of vehicles, thereby at a potential for 'left hook' type conflicts. The revised design provides measures to increase visibility of cyclists in the approach to the junction and is therefore considered to be an improvement over the existing situation. For this reason this issue is no longer raised as part of this revision of this Road Safety Audit report.'</p>	
Client Organisation Comments	
<p>Audit problem 3.1.1 addressed in Audit Ref: 2021.13/001/UNC/TLRN/2014 (Westbourne Terrace Alteration).</p>	

## Cycle Superhighways East-West Route, West Section (DP1 and DP2)

### Stage 1 Road Safety Audit Report

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#### 3.1.2 PROBLEM

**Location:** A – Westbourne Terrace junction with Chilworth Street

**Summary:** Right turn facility may not be sufficient to accommodate cyclists

The Audit Team is concerned that the cut through areas within the central refuge island opposite Chilworth Street may not be sufficient to accommodate a cycle. Cyclists using the facility may overhang into the live carriageway with an exacerbated potential for conflict with passing vehicles as a result.

#### RECOMMENDATION

Ensure the cut through area is sufficient in width to fully accommodate a cycle. If this cannot be achieved it may be beneficial to widen the island or alternatively remove the cycle cut through facility.

Design Organisation Response	Accepted / Part Accepted / Rejected
As it was not possible to widen the island this facility has been removed from the proposed drawings.	
Client Organisation Comments	
Agree with safety auditor; facility has been removed from the design.	

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End of list of problems identified and recommendations offered in this Stage 1 Road Safety Audit

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## 4.0 ISSUES IDENTIFIED DURING THE STAGE 1 ROAD SAFETY AUDIT THAT ARE OUTSIDE THE TERMS OF REFERENCE

Safety issues identified during the audit and site inspection that are considered to be outside the Terms of Reference, but which the Audit Team wishes to draw to the attention of the Client Organisation, are set out in this section. It is to be understood that, in raising these issues, the Audit Team in no way warrants that a full review of the highway environment has been undertaken beyond that necessary to undertake the Audit as commissioned.

### 4.1 ISSUE

**Location:** General to scheme, multiple locations.

**Reason considered to be outside the Terms of Reference:** Detailed design issue

The Audit Team notes the omission of parking restrictions along large sections of the route. It is assumed that double red lines (as existing) will be provided and will be investigated during detailed design.

Design Organisation Response	Accepted / Part Accepted / Rejected
Parking restrictions have been added in later revisions of the drawings (Rev A).  The highway in this section of the route is borough road. The existing waiting and loading restrictions have been reviewed and changed where considered appropriate. Along Westbourne Terrace where the carriageway has been narrowed to one lane in each direction 'At Any Time' waiting and loading restrictions have been proposed.	
Client Organisation Comments	
Agree with designer; issue noted and resolved in later revisions.	

### 4.2 ISSUE

**Location:** General to scheme, multiple locations.

**Reason considered to be outside the Terms of Reference:** Not safety related

The Audit Team notes the omission of tactile 'tails' at a number of controlled crossing points. The absence of tactile 'tails' may be an inconvenience for those with a visual impairment, who may find it difficult to identify a location to cross. It is recommended that the tactile 'tails' are provided to assist pedestrians with visual impairments.

Design Organisation Response	Accepted / Part Accepted / Rejected
The Highway Authority on this section of the East-West Cycle Superhighway is Westminster City Council. Accordingly, the WCC Supplementary Planning Document 'Westminster Way – Public realm strategy design principles and practice' (Adopted 6 September 2011) has been used. This document states: "the city council will.... Adopt tactile warning strips in the same colour as the surrounding material in a band parallel to the kerb of not less than 800mm and not more than 1200 mm with no tails on the right hand half of the crossing. Where possible tactile installed around a dropped crossing on a curve the back of the tactile should be cut parallel to the kerb to maintain the nominal 800 mm."	

**Client Organisation Comments**

Issue noted; design conforms with WCC guidance.

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**4.3 ISSUE**

**Location:** Westbourne Terrace junction with Bishops Bridge Road

**Reason considered to be outside the Terms of Reference:** Existing problem

The Audit Team notes that the pedestrian refuge on Westbourne Terrace is proposed at a width of 2.5m, the same as the existing facility. If possible it may be beneficial to increase the size of the pedestrian island to maximise accessibility for those with wheelchairs or children's buggies.

**Design Organisation Response**

**Accepted / Part Accepted / Rejected**

It was not considered feasible to increase the size of this island without adversely impacting on the cycle facilities.

**Client Organisation Comments**

Agree with the designer. It is not possible to increase the island size without impacting on the cycle facility. Island to remain as existing.

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## 5.0 SIGNATURES AND SIGN-OFF

### 5.1 AUDIT TEAM STATEMENT

We certify that we have examined the drawings and documents listed in Appendix A. to this Safety Audit report. The Road Safety Audit has been carried out in accordance with TfL Procedure SQA-0170 dated May 2014, with the sole purpose of identifying any feature that could be removed or modified in order to improve the safety of the measures. The problems identified have been noted in this report together with associated suggestions for safety improvements that we recommend should be studied for implementation.

No one on the Audit Team has been involved with the design of the measures.

#### AUDIT TEAM LEADER:

Name: Andrew Coventry  
BEng (Hons), CMILT, MCIHT MSoRSA

Signed: 

Position: Principal Road Safety Auditor Date: 11/06/2014

Organisation: Transport for London, Road Safety Audit  
Asset Management Directorate

Address: 4<sup>th</sup> Floor Palestra, 197 Blackfriars Road, London, SE1 8NJ

Contact: [andrewcoventry@tfl.gov.uk](mailto:andrewcoventry@tfl.gov.uk) (020 3054 2237)

#### AUDIT TEAM MEMBER:

Name: Anya Bownes BA (Hons) MCIHT MSoRSA Signed: 

Position: Principal Road Safety Auditor Date: 11/06/2014

Organisation: Transport for London, Road Safety Audit  
Asset Management Directorate

Address: 4<sup>th</sup> Floor Palestra, 197 Blackfriars Road, London, SE1 8NJ

Contact: [anya.bownes@tfl.gov.uk](mailto:anya.bownes@tfl.gov.uk) (020 3054 1038)

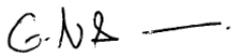
## 5.2 DESIGN TEAM STATEMENT

In accordance with SQA-0170 dated May 2014, I certify that I have reviewed the items raised in this Stage 1 Safety Audit report. I have given due consideration to each issue raised and have stated my proposed course of action for each in this report. I seek the Client Organisations endorsement of my proposals.

**Name:** Gillian Norburn

**Position:** Lead Design Engineer – Outcomes Design Engineering

**Organisation:** TfL

**Signed:** 

**Dated:** 31<sup>ST</sup> March 2015

## 5.3 CLIENT ORGANISATION STATEMENT

I accept these proposals by the Design Organisation.

**Name:** Joy Wigg

**Position:** Scheme Sponsor, Road Space Management

**Organisation:** Transport for London

**Signed:** 

**Dated:** 8<sup>th</sup> April 2015

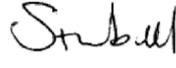
## 5.4 SECONDARY CLIENT ORGANISATION STATEMENT (where appropriate)

I accept these proposals by the Design Organisation.

**Name:** Sarah Turnbull

**Position:** Portfolio Sponsor, Road Space Management

**Organisation:** Transport for London

**Signed:** 

**Dated:** 8<sup>th</sup> April 2015

## APPENDIX A

### Documents Forming the Audit Brief

#### DRAWING NUMBER

TDE-ST-PJ327-CSEW-ID-W-01  
TDE-ST-PJ327-CSEW-ID-W-02  
TDE-ST-PJ327-CSEW-ID-W-03  
TDE-ST-PJ327-CSEW-ID-W-04  
TDE-ST-PJ327-CSEW-ID-W-05  
TDE-ST-PJ327-CSEW-ID-W-06  
TDE-ST-PJ327-CSEW-ID-W-07  
TDE-ST-PJ327-CSEW-ID-W-08  
TDE-ST-PJ327-CSEW-ID-W-09  
TDE-ST-PJ327-CSEW-ID-W-10  
TDE-ST-PJ327-CSEW-ID-W-11  
TDE-ST-PJ327-CSEW-ID-W-12  
TDE-ST-PJ327-CSEW-ID-W-13  
TDE-ST-PJ327-CSEW-ID-W-14

#### DRAWING TITLE

Sheet 1 of 56  
Sheet 2 of 56  
Sheet 3 of 56  
Sheet 4 of 56  
Sheet 5 of 56  
Sheet 6 of 56  
Sheet 7 of 56  
Sheet 8 of 56  
Sheet 9 of 56  
Sheet 10 of 56  
Sheet 11 of 56  
Sheet 12 of 56  
Sheet 13 of 56  
Sheet 14 of 56

#### DOCUMENTS

- Safety Audit Brief
- Site Location Plan
- Traffic signal details
- TfL signal safety checklist
- Departures from standard
- Previous Road Safety Audits
- Previous Designer Responses
- Collision data
- Collision plot
- Traffic flow / modelling data
- Pedestrian flow / modelling data
- Speed survey data
- Other documents

#### DETAILS (where appropriate)

## **APPENDIX B**

### **Problem Locations**



## Cycle Superhighways East-West Route

### Westbourne Street Loading Bay

#### Stage 1 Road Safety Audit

Ref: 2021.04/001/A402/BOR/2014

Prepared for:

**Cycle Superhighways Team**

By:

**Road Safety Audit, TfL Asset Management Directorate**

Prepared by: Andrew Coventry, Audit Team Leader

Checked by: Anya Bownes, Audit Team Member

Approved by: Mark Borrett

Version	Status	Date
A	Audit report issued to Client	06/06/2014



## **1.0 INTRODUCTION**

### **1.1 Commission**

- 1.1.1 This report results from a Stage 1 Road Safety Audit carried out on the Cycle Superhighways East-West Route, Westbourne Street Loading Bay proposals.
- 1.1.2 The Audit was undertaken by TfL Road Safety Audit in accordance with the Audit Brief issued by the Client Organisation on 30<sup>th</sup> May 2014. It took place at the Palestra offices of TfL on 6<sup>th</sup> June 2014 and comprised an examination of the documents provided as listed in Appendix A, plus a visit to the site of the proposed scheme.
- 1.1.3 The visit to the site of the proposed scheme was made on 6<sup>th</sup> June 2014. During the site visit the weather was sunny and the existing road surface was dry.

### **1.2 Terms of Reference**

- 1.2.1 The Terms of Reference of this Audit are as described in TfL Procedure SQA-0170 dated May 2014. The Audit Team has examined and reported only on the road safety implications of the scheme as presented and how it impacts on all road users and has not examined or verified the compliance of the designs to any other criteria. However, to clearly explain a safety problem or the recommendation to resolve a problem the Audit Team may, on occasion, have referred to a design standard without touching on technical audit. An absence of comment relating to specific road users / modes in Section 3 of this report does not imply that they have not been considered; instead the Audit Team feels they are not adversely affected by the proposed changes.
- 1.2.2 This Safety Audit is not intended to identify pre-existing hazards which remain unchanged due to the proposals; hence they will not be raised in Section 3 of this report as they fall outside the remit of Road Safety Audit in general as specified in the procedure SQA-0170 dated May 2014. Safety issues identified during the Audit and site visit that are considered to be outside the Terms of Reference, but which the Audit Team wishes to draw to the attention of the Client Organisation, are set out in Section 4 of this report.
- 1.2.3 Nothing in this Audit should be regarded as a direct instruction to include or remove a measure from within the scheme. Responsibility for designing the scheme lies with the Designer and as such the Audit Team accepts no design responsibility for any changes made to the scheme as a result of this Audit.
- 1.2.4 In accordance with TfL Procedure SQA-0170 dated May 2014, this Audit has a maximum shelf life of 2 years. If the scheme does not progress to the next stage in its development within this period, then the scheme should be re-audited.
- 1.2.5 Unless general to the scheme, all comments and recommendations are referenced to the detailed design drawings and the locations have been indicated on the plan located in Appendix B.
- 1.2.6 It is the responsibility of the Design Organisation to complete the Designer's response section of this Audit report. Where applicable and necessary it is the responsibility of the Client Organisation to complete the Client comment section of this Audit report. Signatures from both the Design Organisation and Client Organisation must be added within Section 5 of this Audit report. A copy of which must be returned to the Audit Team.

### **1.3 Main Parties to the Audit**

#### 1.3.1 Client Organisation

Client contact details: Sarah Turnbull, Road Space Management Directorate

#### 1.3.2 Design Organisation

Design contact details: To be confirmed

#### 1.3.3 Audit Team

Audit Team Leader: Andrew Coventry – TfL Road Safety Audit

Audit Team Member: Anya Bownes – TfL Road Safety Audit

Audit Team Observer: None present

#### 1.3.4 Other Specialist Advisors

Specialist Advisor Details: None present

### **1.4 Purpose of the Scheme**

1.4.1 The purpose of the scheme is to provide a loading bay on Westbourne Street as part of the Cycle Superhighways East-West route (West Section)\*.

\*Taken directly from the Audit Brief.

1.4.2 This Audit covers two options for the introduction of the loading bay on Westbourne Street and the interaction with the Cycle Superhighways route and the immediate network. The remainder of the CS measures are covered under separate Road Safety Audits.

### **1.5 Special Considerations**

1.5.1 The Audit Team has no special considerations to raise.

## **2.0 ITEMS RAISED IN PREVIOUS ROAD SAFETY AUDITS**

The Audit Team is not aware of any other Audits having been carried out on the proposals.

### 3.0 ITEMS RAISED AT THIS STAGE 1 ROAD SAFETY AUDIT

This section should be read in conjunction with Paragraphs 1.2.1, 1.2.2 and 1.2.3 of this report.

#### 3.1 OPTION 4 - UNPROTECTED CONTRA FLOW CYCLE LANE

##### 3.1.1 CYCLE FACILITIES

##### 3.1.2 PROBLEM

**Location:** A – Westbourne Street in proximity to Lancaster Hotel

**Summary:** Layout of loading bay may pose a hazard to cyclists

The Audit Team is concerned that the layout of the loading bay may pose a hazard to cyclists for a number of reasons, namely:

- Westbourne Street is one-way towards Bayswater Road. Vehicles entering and exiting the loading bay will have to cross the contra-flow cycle lane when utilising the facility. There is a concern that drivers will not appreciate the proximity of the contra-flow cycle lane and of the possibility for cyclists to approach in the opposing direction to general traffic.
- A heavy goods vehicle is likely to have a substantial blind spot to the front of the vehicle. It is plausible that a driver could fail to appreciate a cyclist using the contra-flow facility, particularly when looking the wrong way to locate a gap in traffic, which would then become obscured by the vehicle's blind spot.
- It is likely that the majority of vehicles utilising the loading bay will be right hand drive. Drivers of right hand vehicles may have to turn out of the loading bay to obtain sufficient visibility to the nearside to determine when it is safe to exit. Vehicles performing this manoeuvre would encroach into the cycle lane, blocking progression for cyclists or forcing cyclists to divert into the traffic lane to progress.
- The contra-flow cycle lane and adjacent hatching could be misconstrued not to be live carriageway, and hence vehicles may unload in this area further blocking progression for cyclists or forcing cyclists to divert into the traffic lane to progress.
- Cyclists in the contra-flow cycle lane would be susceptible to opening doors, particularly larger vehicles such as HGV's.

An exacerbated potential for conflict between cyclists and motorists may exist as a result.

##### RECOMMENDATION

Modify the layout of the loading bay to reduce the potential for conflict with cyclists. This may require relocating the loading bay in front of the contra-flow cycle lane and adequate segregation being provided between the two features.

Design Organisation Response	Accepted / Part Accepted / Rejected
Not requested.	
Client Organisation Comments	
This option is not being progressed. In the option taken forward, the cycle track is on the opposite side of Westbourne Street.	
Proposals covering the proposed layout here have been subject to the following audits:	

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2021.05/VAR/VAR/TLRN/2014 (West Section DP1 & 2)

2021.17/001/TLRN/2014 (Lancaster Gate Alteration)

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### **3.2 OPTION 3 – FULLY SEGREGATED CYCLE FACILITY**

The Audit Team has not identified any features of the scheme that could be removed or modified in order to improve the road safety of the measures.

The Audit Team notes that the layout requires vehicles to unload onto the 'floating' island, and then transition to the footway via the raised table provided. Some vehicles, particularly with a rear tail-lift may prefer to unload into the area to the rear of the loading bay, it may therefore be beneficial to provide a dropped kerb to facilitate them to access to the 'floating' island.

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**End of list of problems identified and recommendations offered in this Stage 1 Road Safety Audit**

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#### 4.0 ISSUES IDENTIFIED DURING THE STAGE 1 ROAD SAFETY AUDIT THAT ARE OUTSIDE THE TERMS OF REFERENCE

Safety issues identified during the audit and site inspection that are considered to be outside the Terms of Reference, but which the Audit Team wishes to draw to the attention of the Client Organisation, are set out in this section. It is to be understood that, in raising these issues, the Audit Team in no way warrants that a full review of the highway environment has been undertaken beyond that necessary to undertake the Audit as commissioned.

#### 4.1 ISSUE

**Location:** Westbourne Street in proximity to Lancaster Hotel

**Reason considered to be outside the Terms of Reference:** Detailed design issue

The Audit Team notes the intention to provide a pedestrian crossing in proximity to the loading bay in both layouts. The Audit Team has no issues to raise as part of this Stage 1 Road Safety Audit regarding the principle of this layout, however, safety concerns are likely to relate specifically to the layout of the traffic signals, which would be captured during detailed design.

Design Organisation Response	Accepted / Part Accepted / Rejected
Not requested.	
Client Organisation Comments	
This option is not being progressed. In the option taken forward, the pedestrian crossing is further away from the proposed loading facility.	
Proposals covering the proposed layout here have been subject to the following audits:	
2021.05/VAR/VAR/TLRN/2014 (West Section DP1 & 2)	
2021.17/001/TLRN/2014 (Lancaster Gate Alteration)	

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## 5.0 SIGNATURES AND SIGN-OFF

### 5.1 AUDIT TEAM STATEMENT

We certify that we have examined the drawings and documents listed in Appendix A. to this Safety Audit report. The Road Safety Audit has been carried out in accordance with TfL Procedure SQA-0170 dated May 2014, with the sole purpose of identifying any feature that could be removed or modified in order to improve the safety of the measures. The problems identified have been noted in this report together with associated suggestions for safety improvements that we recommend should be studied for implementation.

No one on the Audit Team has been involved with the design of the measures.

#### AUDIT TEAM LEADER:

Name: Andrew Coventry  
BEng (Hons), CMILT, MCIHT MSoRSA      Signed: 

Position: Principal Road Safety Auditor      Date: 06/06/2014

Organisation: Transport for London, Road Safety Audit  
Asset Management Directorate

Address: 4<sup>th</sup> Floor Palestra, 197 Blackfriars Road, London, SE1 8NJ

Contact: [andrewcoventry@tfl.gov.uk](mailto:andrewcoventry@tfl.gov.uk) (020 3054 2237)

#### AUDIT TEAM MEMBER:

Name: Anya Bownes BA (Hons) MCIHT MSoRSA      Signed: 

Position: Principal Road Safety Auditor      Date: 06/06/2014

Organisation: Transport for London, Road Safety Audit  
Asset Management Directorate

Address: 4<sup>th</sup> Floor Palestra, 197 Blackfriars Road, London, SE1 8NJ

Contact: [anya.bownes@tfl.gov.uk](mailto:anya.bownes@tfl.gov.uk) (020 3054 1038)

## 5.2 DESIGN TEAM STATEMENT

In accordance with SQA-0170 dated May 2014, I certify that I have reviewed the items raised in this Stage 1 Safety Audit report. I have given due consideration to each issue raised and have stated my proposed course of action for each in this report. I seek the Client Organisations endorsement of my proposals.

**Design Team Statement not requested as this option is not being progressed.**

## 5.3 CLIENT ORGANISATION STATEMENT

I accept these proposals by the Design Organisation.

**Name: Joy Wigg**

**Position: Scheme Sponsor, Road Space Management**

**Organisation: Transport for London**

Signed: 

**Dated: 8<sup>th</sup> April 2015**

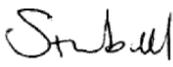
## 5.4 SECONDARY CLIENT ORGANISATION STATEMENT (where appropriate)

I accept these proposals by the Design Organisation.

**Name: Sarah Turnbull**

**Position: Portfolio Sponsor, Road Space Management**

**Organisation: Transport for London**

Signed: 

**Dated: 8<sup>th</sup> April 2015**

## APPENDIX A

### Documents Forming the Audit Brief

#### DRAWING NUMBER

TDE-ST-PJ327-CSEW-ID-LANC  
HOTEL – OPTION 3  
TDE-ST-PJ327-CSEW-ID-LANC  
HOTEL – OPTION 4

#### DRAWING TITLE

Initial Design Option 3  
Initial Design Option 4

#### DOCUMENTS

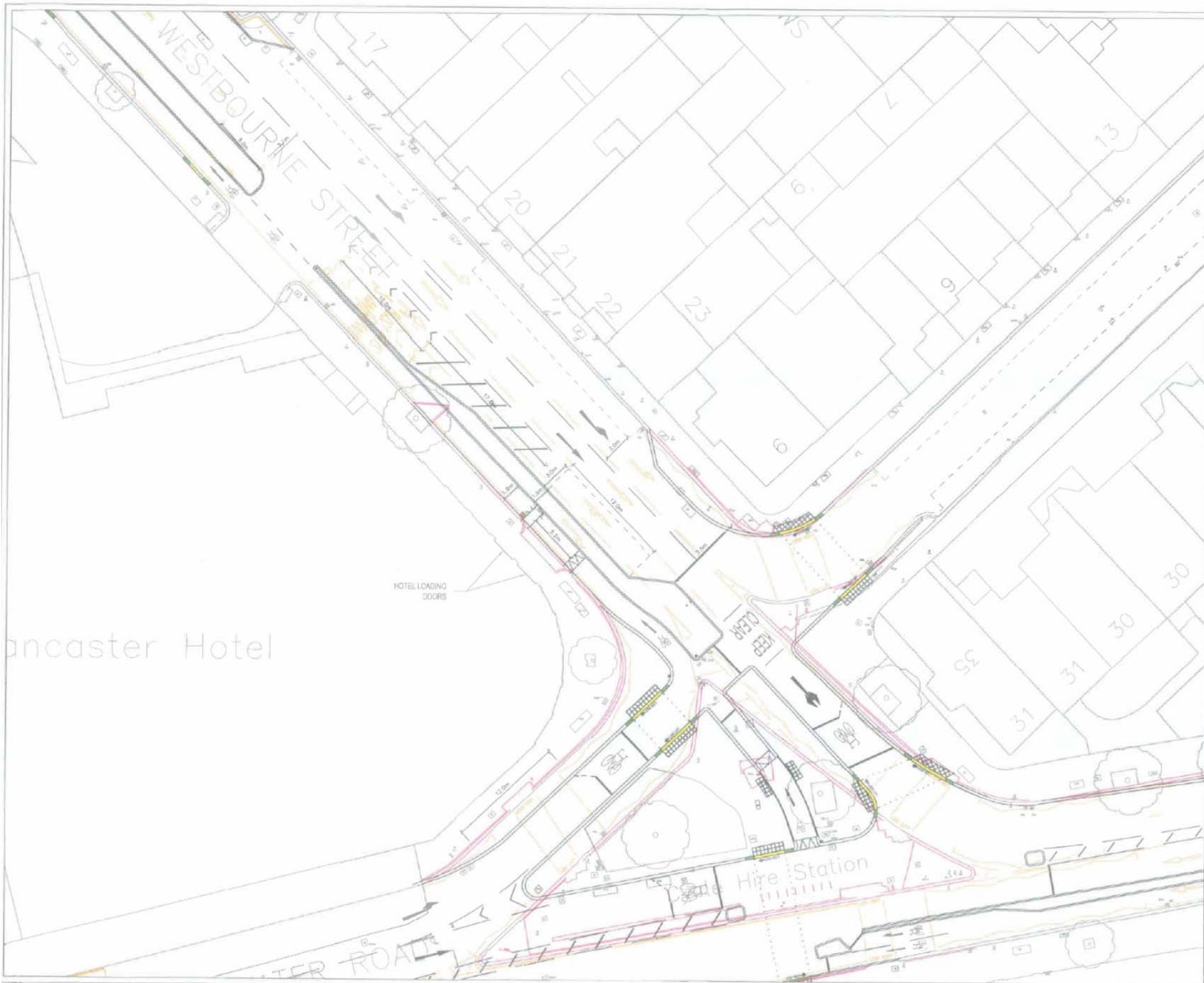
- Safety Audit Brief
- Site Location Plan
- Traffic signal details
- TfL signal safety checklist
- Departures from standard
- Previous Road Safety Audits
- Previous Designer Responses
- Collision data
- Collision plot
- Traffic flow / modelling data
- Pedestrian flow / modelling data
- Speed survey data
- Other documents

#### DETAILS (where appropriate)

## **APPENDIX B**

### **Problem Locations**





Lancaster Hotel

rev	date	details	CHK	APP
Transport for Greater Manchester				
Surface Transport			Asset Management Traffic Design Engineering	



scheme  
 CYCLE SUPER HIGHWAY  
 EAST - WEST ROUTE  
 LANCASTER GATE HOTEL LOADING  
 INITIAL DESIGN - OPTION 3

date	scale	dwn	chk	app
07.05.14	1:250 @ A2	PR	GSM	-
Dwg N° TDE-ST-PJ327-CSEW-ID- -LANC HOTEL - OPTION 3				REV

## Cycle Superhighways East-West Route

### Lancaster Gate Alterations

Stage 1 Road Safety Audit

Ref: 2021.17/001/VAR/TLRN/2015

Prepared for:

**Cycle Superhighways Team**

By:

**Road Safety Audit, TfL Asset Management Directorate**

Prepared by: Andrew Coventry, Audit Team Leader

Checked by: Anya Bownes, Audit Team Member

Approved by: Shane Martin

Version	Status	Date
A	Audit report issued to Client	23/01/2015



## **1.0 INTRODUCTION**

### **1.1 Commission**

- 1.1.1 This report results from a Stage 1 Road Safety Audit carried out on the Cycle Superhighways East-West Route, Lancaster Gate Alterations.
- 1.1.2 The Audit was undertaken by TfL Road Safety Audit in accordance with the Audit Brief issued by the Client Organisation on 7<sup>th</sup> January 2015. It took place at the Palestra offices of TfL on 15<sup>th</sup> January 2015 and comprised an examination of the documents provided as listed in Appendix A, plus a visit to the site of the proposed scheme.
- 1.1.3 The visit to the site of the proposed scheme was made on 15<sup>th</sup> January 2015. During the site visit the weather was overcast and the existing road surface was wet.

### **1.2 Terms of Reference**

- 1.2.1 The Terms of Reference of this Audit are as described in TfL Procedure SQA-0170 dated May 2014. The Audit Team has examined and reported only on the road safety implications of the scheme as presented and how it impacts on all road users and has not examined or verified the compliance of the designs to any other criteria. However, to clearly explain a safety problem or the recommendation to resolve a problem the Audit Team may, on occasion, have referred to a design standard without touching on technical audit. An absence of comment relating to specific road users / modes in Section 3 of this report does not imply that they have not been considered; instead the Audit Team feels they are not adversely affected by the proposed changes.
- 1.2.2 This Safety Audit is not intended to identify pre-existing hazards which remain unchanged due to the proposals; hence they will not be raised in Section 3 of this report as they fall outside the remit of Road Safety Audit in general as specified in the procedure SQA-0170 dated May 2014. Safety issues identified during the Audit and site visit that are considered to be outside the Terms of Reference, but which the Audit Team wishes to draw to the attention of the Client Organisation, are set out in Section 4 of this report.
- 1.2.3 Nothing in this Audit should be regarded as a direct instruction to include or remove a measure from within the scheme. Responsibility for designing the scheme lies with the Designer and as such the Audit Team accepts no design responsibility for any changes made to the scheme as a result of this Audit.
- 1.2.4 In accordance with TfL Procedure SQA-0170 dated May 2014, this Audit has a maximum shelf life of 2 years. If the scheme does not progress to the next stage in its development within this period, then the scheme should be re-audited.
- 1.2.5 Unless general to the scheme, all comments and recommendations are referenced to the detailed design drawings and the locations have been indicated on the plan located in Appendix B.
- 1.2.6 It is the responsibility of the Design Organisation to complete the Designer's response section of this Audit report. Where applicable and necessary it is the responsibility of the Client Organisation to complete the Client comment section of this Audit report. Signatures from both the Design Organisation and Client Organisation must be added within Section 5 of this Audit report. A copy of which must be returned to the Audit Team.

### **1.3 Main Parties to the Audit**

#### 1.3.1 Client Organisation

Client contact details: Sarah Turnbull – TfL Road Space Management Directorate

#### 1.3.2 Design Organisation

Design contact details: Gillian Norburn – TfL Road Space Management Directorate

#### 1.3.3 Audit Team

Audit Team Leader: Andrew Coventry – TfL Road Safety Audit

Audit Team Member: Anya Bownes – TfL Road Safety Audit

Audit Team Observer: None present

#### 1.3.4 Other Specialist Advisors

Specialist Advisor Details: None present

### **1.4 Purpose of the Scheme**

1.4.1 The purpose of the scheme is to provide a Cycle Superhighways route (west section) linking Westbourne Bridge with Parliament Square\*.

This Audit covers the modifications the Lancaster Gate Gyratory.

\* Taken directly from Audit Brief.

### **1.5 Special Considerations**

1.5.1 This Audit covers the modifications the Lancaster Gate Gyratory.

Reference should be made to the original Stage 1 Road Safety (ref. 2021.05) Audit for the other elements of the design not modified by the alterations.

## **2.0 ITEMS RAISED IN PREVIOUS ROAD SAFETY AUDITS**

The wider Cycle Superhighways East-West proposals have been subject to number of Stage 1 Road Safety Audits carried out in during Spring and Summer 2014 by TfL Road Safety Audit. The Audit reports can be summarised as follows:

2021.01	East Section
2021.02	Central Section (Part)
2021.03	Right Turn into Arthur Street
2021.04	Westbourne Street Loading Bay Options
2021.05	West Section (Part)
2021.06	Westminster Bridge
2021.07	Central Section Sheets 1 to 15
2021.08	West Section Sheets 1 to 3
2021.09	Parliament Square
2021.10	Water Lane
2021.11	Shorter Street
2021.12	Cleopatra's Needle
2021.13	Westbourne Terrace
2021.14	Westminster Bridge
2021.16	Hyde Park (part)

This Audit covers the modifications the Lancaster Gate Gyratory.

Reference should be made to the original Stage 1 Road Safety (ref. 2021.05) Audit for the other elements of the design not modified by the alterations.

### 3.0 ITEMS RAISED AT THIS STAGE 1 ROAD SAFETY AUDIT

This section should be read in conjunction with Paragraphs 1.2.1, 1.2.2 and 1.2.3 of this report.

#### 3.1 JUNCTIONS

##### 3.1.1 PROBLEM

**Location:** A – Sussex Gardens outside St James Church

**Summary:** Traffic Island location may hamper the swept path of vehicles

The Audit Team is concerned that the segregation island may hamper the swept path for vehicles. The location of the segregation may not be immediately visible to drivers when turning onto or from the carriageway. Drivers may fail to appreciate the presence of the island and over run the feature. Drivers over-running the feature are at an exacerbated potential for loss of control type collisions and injury to vehicle occupants.

##### RECOMMENDATION

Modify the layout of the segregation to ensure it is located outside the swept path for vehicles.

Design Organisation Response	Accepted / Part Accepted / Rejected
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TfL have spoken to a representative from St James Church who have advised that a variety of vehicles currently use the forecourt at St James, up to and including limousines (for events such as weddings and funerals); however vehicles such as lorries and coaches do not access the forecourt.

The Preliminary Design Team have tracked a limousine into and out of both access and there are no conflicts with the segregation islands.

A medium refuse vehicle was also tracked into and out of all the gates and while it is tight (mainly owing to the width of the gates – an existing issue) the segregation islands do not appear to limit access. The only issue is with a medium refuse vehicle leaving the church at the northern access and proceeding immediately north on Westbourne Terrace. Discussions are on-going with WCC as to how refuse collection will take place at this location in the future. If it is proposed that refuse vehicles access the forecourt the design can be changed at Detailed Design to accommodate the appropriate vehicle movements.

Based on the information available at the time of replying to this RSA, and the tracking undertaken, it is not proposed to amend the design at this time. Increasing the set-back of the segregation from the accesses may encourage higher speeds for accessing and egressing vehicles which may increase the risk of conflict with cyclists in the segregated lane. The segregation islands will be kerbed and 1.0m wide at this location, it is considered that they should be sufficiently conspicuous to turning traffic.

##### Client Organisation Comments

Problem noted, agree with designer. WCC have indicated it is unlikely that refuse vehicles would use the church car park; should this be required, this will be changed

**Cycle Superhighways East-West Route, Lancaster Gate Alterations**  
Stage 1 Road Safety Audit Report

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at detailed design.

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## 3.2 PEDESTRIANS

### 3.2.1 PROBLEM

**Location:** General to scheme, multiple locations

**Summary:** Absence of a pedestrian deterrent may expose a potentially unsafe desire line

The Audit Team is concerned that reverse staggered pedestrian islands are proposed without the provision of a pedestrian deterrent to discourage pedestrians from straight lining the crossing. The 'non preferred' arrangement at these staggered pedestrian crossings guides pedestrians to 'walk away' from approaching traffic. The absence of a pedestrian deterrent may invite pedestrians to ignore the stagger and cross in a straight ahead movement. Any pedestrian performing this manoeuvre may do so behind the stop-line, and therefore potentially between stationary, accelerating or decelerating vehicles thereby increasing the potential for conflict.

#### RECOMMENDATION

Provide measures to ensure compliance of the stagger by pedestrians. This may require the provision of a pedestrian deterrent such as pedestrian guardrail.

Design Organisation Response	Accepted / Part Accepted / Rejected
<p>One reverse stagger pedestrian crossing is proposed as part of the EWCS within the Lancaster Gate design – at the junction of Bayswater Road with Lancaster Terrace. At this crossing the visibility, for both pedestrians and vehicles, is very good and the traffic movements at the crossing are simple, with no traffic from unusual or unexpected directions. The length of the internal stagger is in accordance with design guidance and it should be clear to pedestrians that there are two separate crossings.</p> <p>While the island width is in excess of recommended minimums the addition of PGR would reduce the useable space for pedestrians by 1m.</p> <p>The provision of PGR can also lead to pedestrians being trapped in the road if they choose to cross away from the dropped kerbs.</p> <p>Pedestrians attempting to cross outside the designated crossings would normally be prepared to make their own judgement and other staggered crossings where the PGR has been removed or not provided do not show an increase in collisions.</p>	
Client Organisation Comments	
<p>Agree with designer: considering the risks posed by installing PGR, and the very good visibility, simple traffic movements and stagger lengths in accordance with design guidance, no PGR to be provided here.</p>	

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End of list of problems identified and recommendations offered in this Stage 1 Road Safety Audit

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## 4.0 ISSUES IDENTIFIED DURING THE STAGE 1 ROAD SAFETY AUDIT THAT ARE OUTSIDE THE TERMS OF REFERENCE

Safety issues identified during the audit and site inspection that are considered to be outside the Terms of Reference, but which the Audit Team wishes to draw to the attention of the Client Organisation, are set out in this section. It is to be understood that, in raising these issues, the Audit Team in no way warrants that a full review of the highway environment has been undertaken beyond that necessary to undertake the Audit as commissioned.

### 4.1 ISSUE

**Location:** General to scheme, multiple locations

**Reason considered to be outside the Terms of Reference:** Detailed design issue

The Audit Team notes the use of the 'Westminster Standard' layout for tactile paving which omits the tactile tail. The omission of the tactile tail may make it difficult for pedestrians with visual impairments to identify the crossing point making negotiating the crossing inconvenient for these users. It is therefore recommended that tactile tails are provided to assist visually impaired users to identify the location of the controlled crossing point.

Design Organisation Response	Accepted / Part Accepted / Rejected
The Highway Authority on this section of the East-West Cycle Superhighway is Westminster City Council (WCC). Accordingly, the WCC Supplementary Planning Document 'Westminster Way – Public realm strategy design principles and practice' (Adopted 6 September 2011) has been used. This document states: "the city council will.... Adopt tactile warning strips in the same colour as the surrounding material in a band parallel to the kerb of not less than 800mm and not more than 1200 mm with no tails on the right hand half of the crossing. Where possible tactile installed around a dropped crossing on a curve the back of the tactile should be cut parallel to the kerb to maintain the nominal 800 mm."	
Client Organisation Comments	
Issue noted; design conforms to WCC guidance.	

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## 5.0 SIGNATURES AND SIGN-OFF

### 5.1 AUDIT TEAM STATEMENT

We certify that we have examined the drawings and documents listed in Appendix A. to this Safety Audit report. The Road Safety Audit has been carried out in accordance with TfL Procedure SQA-0170 dated May 2014, with the sole purpose of identifying any feature that could be removed or modified in order to improve the safety of the measures. The problems identified have been noted in this report together with associated suggestions for safety improvements that we recommend should be studied for implementation.

No one on the Audit Team has been involved with the design of the measures.

#### AUDIT TEAM LEADER:

Name: Andrew Coventry  
BEng (Hons), MCIHT MSoRSA

Signed:



Position: Road Safety Audit Manager

Date: 23/01/2015

Organisation: Transport for London, Road Safety Audit  
Asset Management Directorate

Address: 8<sup>th</sup> Floor Palestra, 197 Blackfriars Road, London, SE1 8NJ

Contact: [andrewcoventry@tfl.gov.uk](mailto:andrewcoventry@tfl.gov.uk) (020 3054 2237)

#### AUDIT TEAM MEMBER:

Name: Anya Bownes BA (Hons) MCIHT MSoRSA

Signed:



Position: Principal Road Safety Auditor

Date: 23/01/2015

Organisation: Transport for London, Road Safety Audit  
Asset Management Directorate

Address: 8<sup>th</sup> Floor Palestra, 197 Blackfriars Road, London, SE1 8NJ

Contact: [anya.bownes@tfl.gov.uk](mailto:anya.bownes@tfl.gov.uk) (020 3054 1038)

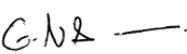
## 5.2 DESIGN TEAM STATEMENT

In accordance with SQA-0170 dated May 2014, I certify that I have reviewed the items raised in this Stage 1 Safety Audit report. I have given due consideration to each issue raised and have stated my proposed course of action for each in this report. I seek the Client Organisation's endorsement of my proposals.

**Name:** Gillian Norburn

**Position:** Lead Design Engineer – Outcomes Design Engineering

**Organisation:** Transport for London

**Signed:** 

**Dated:** 31<sup>st</sup> March 2015

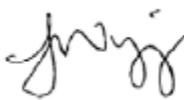
## 5.3 CLIENT ORGANISATION STATEMENT

I accept these proposals by the Design Organisation.

**Name:** Joy Wigg

**Position:** Scheme Sponsor, Road Space Management

**Organisation:** Transport for London

**Signed:** 

**Dated:** 8<sup>th</sup> April 2015

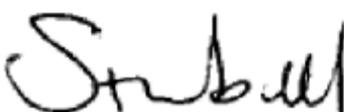
## 5.4 SECONDARY CLIENT ORGANISATION STATEMENT (where appropriate)

I accept these proposals by the Design Organisation.

**Name:** Sarah Turnbull

**Position:** Portfolio Sponsor, Road Space Management

**Organisation:** Transport for London

**Signed:** 

2015

**Dated:** 8<sup>th</sup> April

## APPENDIX A

### Documents Forming the Audit Brief

#### DRAWING NUMBER

ODE-ST-P-CSEW-ID-W-006-014

#### DRAWING TITLE

Drawings 006 and 014

#### DOCUMENTS

- Safety Audit Brief
- Site Location Plan
- Traffic signal details
- TfL signal safety checklist
- Departures from standard
- Previous Road Safety Audits
- Previous Designer Responses
- Collision data
- Collision plot
- Traffic flow / modelling data
- Pedestrian flow / modelling data
- Speed survey data
- Other documents

#### DETAILS (where appropriate)

## **APPENDIX B**

### **Problem Locations**



## Cycle Superhighways East-West Route

### Westbourne Terrace Alteration

Stage 1 Road Safety Audit

Ref: 2021.13/001/UNC/TLRN/2014

Prepared for:

**Cycle Superhighways Team**

By:

**Road Safety Audit, TfL Asset Management Directorate**

Prepared by: Andrew Coventry, Audit Team Leader

Checked by: Anya Bownes, Audit Team Member

Approved by: Shane Martin

Version	Status	Date
A	Audit report issued to Client	18/08/2014

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## **1.0 INTRODUCTION**

### **1.1 Commission**

- 1.1.1 This report results from a Stage 1 Road Safety Audit carried out on the Cycle Superhighways East-West Route, Westbourne Terrace Alteration proposals.
- 1.1.2 The Audit was undertaken by TfL Road Safety Audit in accordance with the Audit Brief issued by the Client Organisation on 8<sup>th</sup> August 2014. It took place at the Palestra offices of TfL on 13<sup>th</sup> August 2014 and comprised an examination of the documents provided as listed in Appendix A, plus a visit to the site of the proposed scheme.
- 1.1.3 The visit to the site of the proposed scheme was made on 13<sup>th</sup> August 2014. During the site visit the weather was sunny and the existing road surface was dry.

### **1.2 Terms of Reference**

- 1.2.1 The Terms of Reference of this Audit are as described in TfL Procedure SQA-0170 dated May 2014. The Audit Team has examined and reported only on the road safety implications of the scheme as presented and how it impacts on all road users and has not examined or verified the compliance of the designs to any other criteria. However, to clearly explain a safety problem or the recommendation to resolve a problem the Audit Team may, on occasion, have referred to a design standard without touching on technical audit. An absence of comment relating to specific road users / modes in Section 3 of this report does not imply that they have not been considered; instead the Audit Team feels they are not adversely affected by the proposed changes.
- 1.2.2 This Safety Audit is not intended to identify pre-existing hazards which remain unchanged due to the proposals; hence they will not be raised in Section 3 of this report as they fall outside the remit of Road Safety Audit in general as specified in the procedure SQA-0170 dated May 2014. Safety issues identified during the Audit and site visit that are considered to be outside the Terms of Reference, but which the Audit Team wishes to draw to the attention of the Client Organisation, are set out in Section 4 of this report.
- 1.2.3 Nothing in this Audit should be regarded as a direct instruction to include or remove a measure from within the scheme. Responsibility for designing the scheme lies with the Designer and as such the Audit Team accepts no design responsibility for any changes made to the scheme as a result of this Audit.
- 1.2.4 In accordance with TfL Procedure SQA-0170 dated May 2014, this Audit has a maximum shelf life of 2 years. If the scheme does not progress to the next stage in its development within this period, then the scheme should be re-audited.
- 1.2.5 Unless general to the scheme, all comments and recommendations are referenced to the detailed design drawings and the locations have been indicated on the plan located in Appendix B.
- 1.2.6 It is the responsibility of the Design Organisation to complete the Designer's response section of this Audit report. Where applicable and necessary it is the responsibility of the Client Organisation to complete the Client comment section of this Audit report. Signatures from both the Design Organisation and Client Organisation must be added within Section 5 of this Audit report. A copy of which must be returned to the Audit Team.

### **1.3 Main Parties to the Audit**

#### 1.3.1 Client Organisation

Client contact details: Sarah Turnbull, Road Space Management Directorate

#### 1.3.2 Design Organisation

Design contact details: Gillian Norburn, Asset Management Directorate

#### 1.3.3 Audit Team

Audit Team Leader: Andrew Coventry – TfL Road Safety Audit

Audit Team Member: Anya Bownes – TfL Road Safety Audit

Audit Team Observer: None present

#### 1.3.4 Other Specialist Advisors

Specialist Advisor Details: None present

### **1.4 Purpose of the Scheme**

1.4.1 The purpose of the scheme is to provide a Cycle Superhighways route (West Section) linking Hyde Park to Westbourne Bridge by Orsett Terrace.

This Audit covers the modifications to the junction with Craven Road (sheet 5 of 56).

### **1.5 Special Considerations**

1.5.1 The Audit Team has no special considerations to raise.

## **2.0 ITEMS RAISED IN PREVIOUS ROAD SAFETY AUDITS**

The proposals were subject to a Stage 1 Road Safety Audit carried out in June 2014 by TfL Road Safety Audit (ref: 2021.05/VAR/VAR/TLRN/2014). This Audit covers a previous iteration of the design and any relevant problems have been carried over into this Audit report.

### **3.0 ITEMS RAISED AT THIS STAGE 1 ROAD SAFETY AUDIT**

This section should be read in conjunction with Paragraphs 1.2.1, 1.2.2 and 1.2.3 of this report.

The Audit Team has not identified any features of the scheme that could be removed or modified in order to improve the road safety of the measures.

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**End of list of problems identified and recommendations offered in this Stage 1 Road Safety Audit**

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#### 4.0 ISSUES IDENTIFIED DURING THE STAGE 1 ROAD SAFETY AUDIT THAT ARE OUTSIDE THE TERMS OF REFERENCE

Safety issues identified during the audit and site inspection that are considered to be outside the Terms of Reference, but which the Audit Team wishes to draw to the attention of the Client Organisation, are set out in this section. It is to be understood that, in raising these issues, the Audit Team in no way warrants that a full review of the highway environment has been undertaken beyond that necessary to undertake the Audit as commissioned.

#### 4.1 ISSUE

**Location:** Westbourne Terrace junction with Craven Road

**Reason considered to be outside the Terms of Reference:** Existing problem

The Audit Team notes that the junction in its current arrangement encourages cyclists to adopt a position to the nearside of vehicles, thereby at a potential for 'left hook' type conflicts. The revised design provides measures to increase visibility of cyclists in the approach to the junction and is therefore considered to be an improvement over the existing situation. For this reason this issue is no longer raised as part of this revision of this Road Safety Audit report.

Design Organisation Response	Accepted / Part Accepted / Rejected
<p>This junction, and the northbound approach to Cleveland Terrace, were re-designed following a Problem raised in a previous audit (Ref: 2021.05/VAR/VAR/TLRN/2014).</p> <p>The junctions were modified to reduce the potential for cycle conflict with left turning vehicles by encouraging cyclists to adopt a position in front of vehicles when waiting at the stop-line and to adopt a more assertive position in free-flow traffic conditions.</p>	
Client Organisation Comments	
<p>Agree with the designer. Issue noted.</p>	

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## 5.0 SIGNATURES AND SIGN-OFF

### 5.1 AUDIT TEAM STATEMENT

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No one on the Audit Team has been involved with the design of the measures.

#### AUDIT TEAM LEADER:

Name: Andrew Coventry  
BEng (Hons), CMILT, MCIHT MSoRSA

Signed:



Position: Road Safety Audit Manager

Date: 18/08/2014

Organisation: Transport for London, Road Safety Audit  
Asset Management Directorate

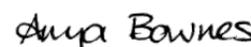
Address: 4<sup>th</sup> Floor Palestra, 197 Blackfriars Road, London, SE1 8NJ

Contact: [andrewcoventry@tfl.gov.uk](mailto:andrewcoventry@tfl.gov.uk) (020 3054 2237)

#### AUDIT TEAM MEMBER:

Name: Anya Bownes BA (Hons) MCIHT MSoRSA

Signed:



Position: Principal Road Safety Auditor

Date: 18/08/2014

Organisation: Transport for London, Road Safety Audit  
Asset Management Directorate

Address: 4<sup>th</sup> Floor Palestra, 197 Blackfriars Road, London, SE1 8NJ

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**Name:** Gillian Norburn

**Position:** Lead Design Engineer – Outcomes Design Engineering

**Organisation:** TfL

**Signed:** 

**Dated:** 31<sup>st</sup> March 2015

## 5.3 CLIENT ORGANISATION STATEMENT

I accept these proposals by the Design Organisation.

**Name:** Joy Wigg

**Position:** Scheme Sponsor, Road Space Management

**Organisation:** Transport for London

**Signed:** 

**Dated:** 8<sup>th</sup> April 2015

## 5.4 SECONDARY CLIENT ORGANISATION STATEMENT (where appropriate)

I accept these proposals by the Design Organisation.

**Name:** Sarah Turnbull

**Position:** Portfolio Sponsor, Road Space Management

**Organisation:** Transport for London

**Signed:** 

**Dated:** 8<sup>th</sup> April 2015

## APPENDIX A

### Documents Forming the Audit Brief

#### DRAWING NUMBER

ODE-ST-PJ327-CSEW-ID-W-005

#### DRAWING TITLE

Drawing 5 of 56

#### DOCUMENTS

- Safety Audit Brief
- Site Location Plan
- Traffic signal details
- TfL signal safety checklist
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- Previous Designer Responses
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- Collision plot
- Traffic flow / modelling data
- Pedestrian flow / modelling data
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- Other documents

#### DETAILS (where appropriate)

## **APPENDIX B**

### **Problem Locations**

