

## TECHNICAL NOTE 2

<b>DATE:</b>	27 April 2020	<b>CONFIDENTIALITY:</b>	Public
<b>SUBJECT:</b>	Omega Zone 8: Response to Highways England (March 2020 Comments)		
<b>PROJECT:</b>	11191042	<b>AUTHOR:</b>	Adam Stone
<b>CHECKED:</b>	Douglas Bisset	<b>APPROVED:</b>	Douglas Bisset

## INTRODUCTION

WSP UK Limited (WSP) has been commissioned by Omega Warrington Limited (OWL), to provide transportation advice in support of a hybrid planning application for c. 205,500sqm (c.2,210,500sqft) B2/B8 industrial uses on Omega Zone 8, located in the Borough of St Helens.

The application will comprise a detailed planning application for an c.880,000sqft B8 industrial use to the north of the site and an outline planning application for the remaining B2/B8 industrial uses to the south of the site.

This Technical Note has been prepared in response to comments raised by Highways England upon their review of the Transport Assessment and subsequent Technical Note, which were submitted 13<sup>th</sup> December 2019 and 13<sup>th</sup> March 2020, respectively.

Specifically, this note seeks to address the subsequent follow up points raised by Highways England in their Technical Note Review dated 28 March 2020.

## RESPONSES TO HIGHWAYS ENGLAND COMMENTS

### Highways England Point 10 – TRANSYT model setup data

#### Highways England Comment as per Technical Note Review

*Thank you for providing the signal controller information to allow this to be reviewed. All appears ok except the B-A intergreen on stream 4 is set to 5 seconds in the model when the controller specification indicates 6. Please note, a scenario 4 model has not been provided for review therefore we are assuming the same issue will be present. If the model is to be re-run to address any other comments we would suggest this is adjusted.*

#### WSP Comments

We acknowledge the discrepancy in the intergreen for B-A and will include this on any subsequent model runs, should it be required.

## TECHNICAL NOTE 2

<b>DATE:</b>	27 April 2020	<b>CONFIDENTIALITY:</b>	Public
<b>SUBJECT:</b>	Omega Zone 8: Response to Highways England (March 2020 Comments)		
<b>PROJECT:</b>	11191042	<b>AUTHOR:</b>	Adam Stone
<b>CHECKED:</b>	Douglas Bisset	<b>APPROVED:</b>	Douglas Bisset

### Highways England Point 11 – TRANSYT model, manual lane balancing

#### Highways England Comment as per Technical Note Review

*Below is a quote from the TRANSYT user guide regarding lane balancing traffic assignment as applied in the model.*

*“... This mode is useful for modelling single junctions (e.g. crossroads, staggers and roundabouts). It takes account of the saturation flow of each traffic stream (max flow for give-ways), while it is NOT influenced by the travel time through the junction – which reflects reasonably well the nature of decision making required by drivers who are travelling through a single junction and choosing the most appropriate path through it.”*

*This therefore suggests drivers choose their lane through the junction based on the first stop line they reach and this is why lane balancing traffic distribution is applied. It continues:*

*“The flow allocation modes provided simply ‘aid’ the process of establishing suitable traffic flows throughout the network. Inevitably there will be some situations where the allocation of flows by these methods will not be suitable and in such situations users have the freedom to specify flows in a more direct manner.”*

*We would therefore suggest that should the developer’s consultant wish to retain adjustments to routing it should be justified through, for example, observations of the existing traffic distribution between lanes on the Burtonwood S approach, appropriate sections of the circulatory or exits if survey videos are available. Or other amendments to the model if appropriate.*

#### WSP Comments

As previously stated in our previous Technical Note, routing of traffic within the network is initially decided based on the ‘lane balancing’ allocation mode within TRANSYT. Any subsequent adjustments to routing have been carried out to account for no internal weaving on the circulatory carriageway within the models.

To clarify the extent of adjustments to the initial entry lane balancing, this has been summarised as follows:

**Table 1– Adjustments to TRANSYT model routing**

Path	From	To	Adjustment
Proposed Mitigation Scenario 5 – AM Peak			
37/38	Burtonwood Road South (6)	M62 Eastbound (4)	Adjust 50%/50% split (37/38) to 70%/30% distribution. This results in redistribution of 142PCUs from offside lane to middle lane (Less than 3 PCUs per cycle).
Proposed Mitigation Scenario 5 – PM Peak			
37/38	Burtonwood Road South (6)	M62 Eastbound (4)	Adjust 50%/50% split (37/38) to 56%/44% distribution. This results in redistribution of 39 PCUs from offside lane to middle lane (Less than 1 PCU per cycle).

As shown in Table 1, only one routing adjustment has been made to the Scenario 5 Proposed Mitigation model. The adjustment results in less than 3 PCUs per cycle being redistributed from the offside lane to the

## TECHNICAL NOTE 2

<b>DATE:</b>	27 April 2020	<b>CONFIDENTIALITY:</b>	Public
<b>SUBJECT:</b>	Omega Zone 8: Response to Highways England (March 2020 Comments)		
<b>PROJECT:</b>	11191042	<b>AUTHOR:</b>	Adam Stone
<b>CHECKED:</b>	Douglas Bisset	<b>APPROVED:</b>	Douglas Bisset

middle lane on the Burtonwood Road (S) approach. This has been done to account for no internal weaving in the model that could occur on the longer straight sections on the roundabout, above the motorway. It is considered that this approach provides a more robust result compared to modelling weaving on the links over the M62, where TRANSYT would re-assign the flows accordingly.

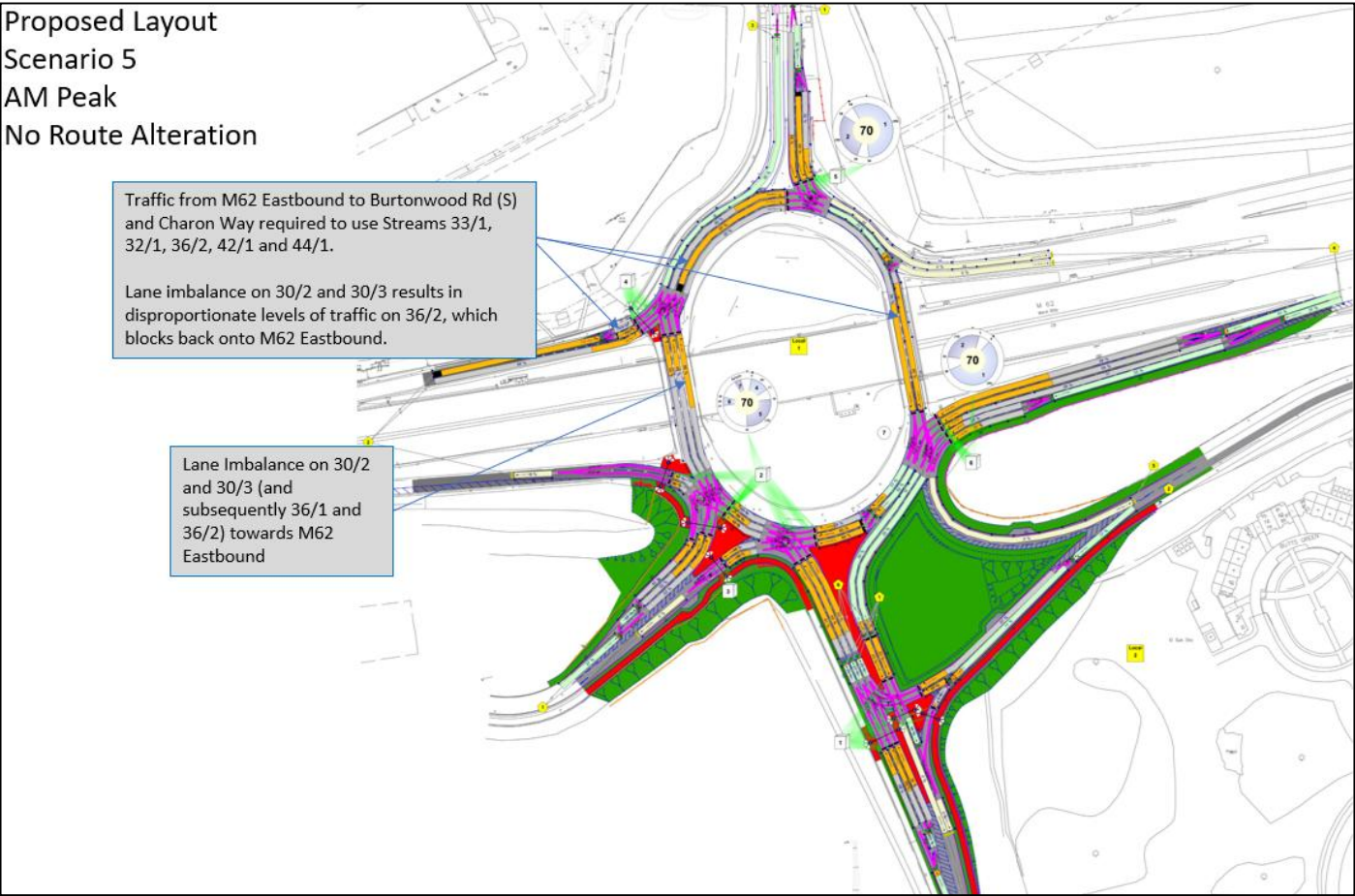
The junction operation would also be supported by the current operational efficiencies achieved through MOVA control, which is expected to improve journey time reliability as well as aid in queue management. This cannot be replicated within the TRANSYT modelling and we would expect the junction results to be better than what is shown within the modelling as part of this assessment.

Notwithstanding the above, we have investigated the Scenario 5 Proposed Mitigation model and undertaken comparisons with and without the exclusive use of the TRANSYT's entry lane balancing function. Figures 1 and 2 show the Scenario 5 Proposed Mitigation model with the exclusive use of the TRANSYT's entry lane balancing function in the AM and PM peak, respectively. Please note, these have also been included within Appendix A.

# TECHNICAL NOTE 2

DATE:	27 April 2020	CONFIDENTIALITY:	Public
SUBJECT:	Omega Zone 8: Response to Highways England (March 2020 Comments)		
PROJECT:	11191042	AUTHOR:	Adam Stone
CHECKED:	Douglas Bisset	APPROVED:	Douglas Bisset

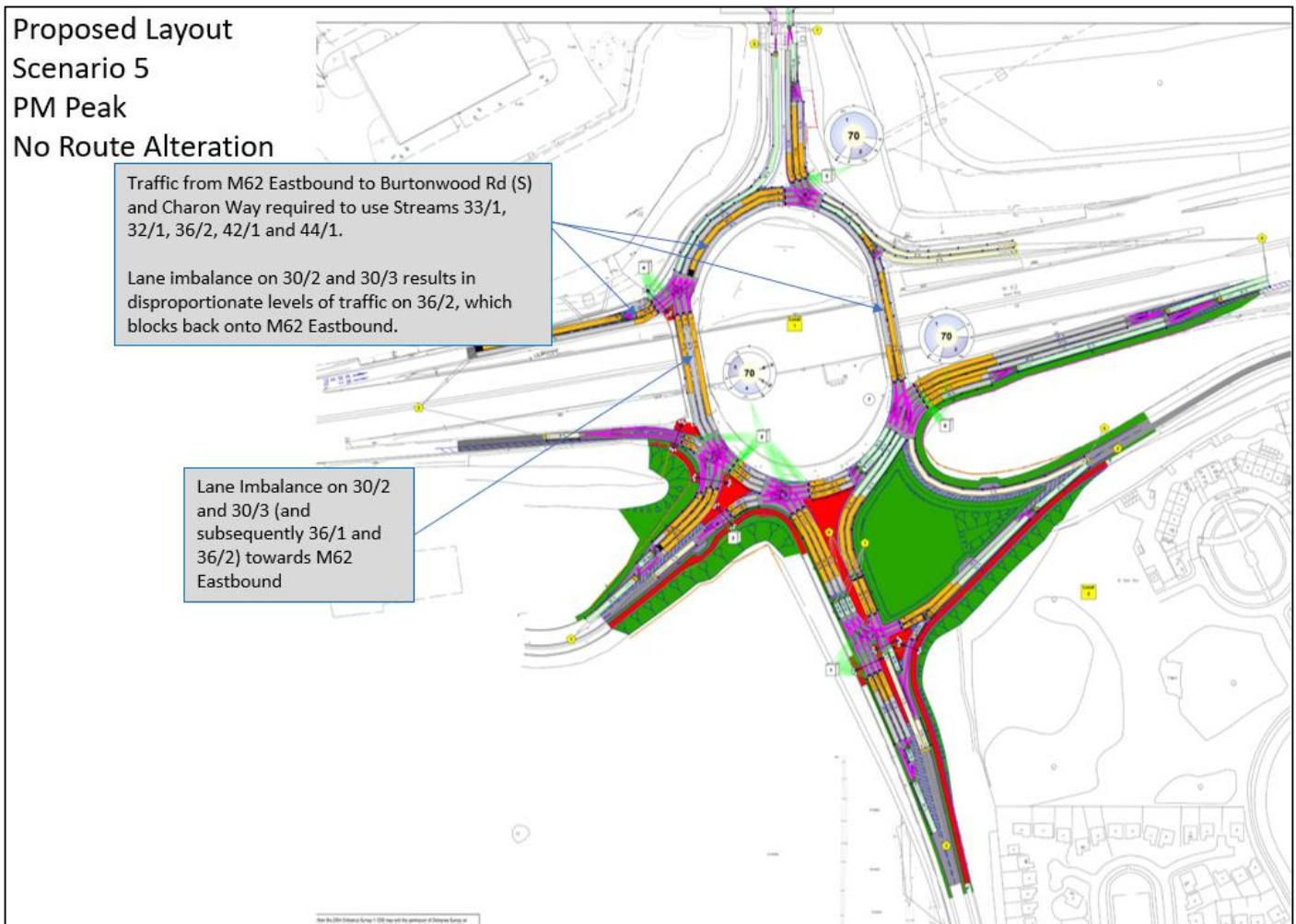
**Figure 1 – Scenario 5 Proposed Mitigation with No Route Alteration (AM PEAK)**



## TECHNICAL NOTE 2

<b>DATE:</b>	27 April 2020	<b>CONFIDENTIALITY:</b>	Public
<b>SUBJECT:</b>	Omega Zone 8: Response to Highways England (March 2020 Comments)		
<b>PROJECT:</b>	11191042	<b>AUTHOR:</b>	Adam Stone
<b>CHECKED:</b>	Douglas Bisset	<b>APPROVED:</b>	Douglas Bisset

**Figure 2 – Scenario 5 Proposed Mitigation with No Route Alteration (PM PEAK)**



Figures 1 and 2 demonstrate the extent to which the circulatory carriageway is imbalanced by exclusively utilising entry lane balancing. Not only does this create imbalances on the links over the M62 (Streams 16/2 and 16/3), but this also results in further imbalances on the immediate upstream circulatory links (Streams 36/1 and 36/2) for traffic heading towards the M62 Eastbound.

The imbalance on lanes 36/1 and 36/2 have further implications on the operation of the roundabout. Due to the reduction of circulatory lanes on the east side of the circulatory carriageway over the M62 (two lanes as opposed to three for the rest of the circulatory carriageway), Traffic travelling from the M62 Eastbound and Skyline Drive to either Burtonwood Road (S) and Charon Way are required to utilise Stream 36/2. Therefore, any excessive imbalance from traffic travelling to the M62 Eastbound On-Slip may result in abnormally high levels of queuing on the M62 Eastbound Off-Slip.

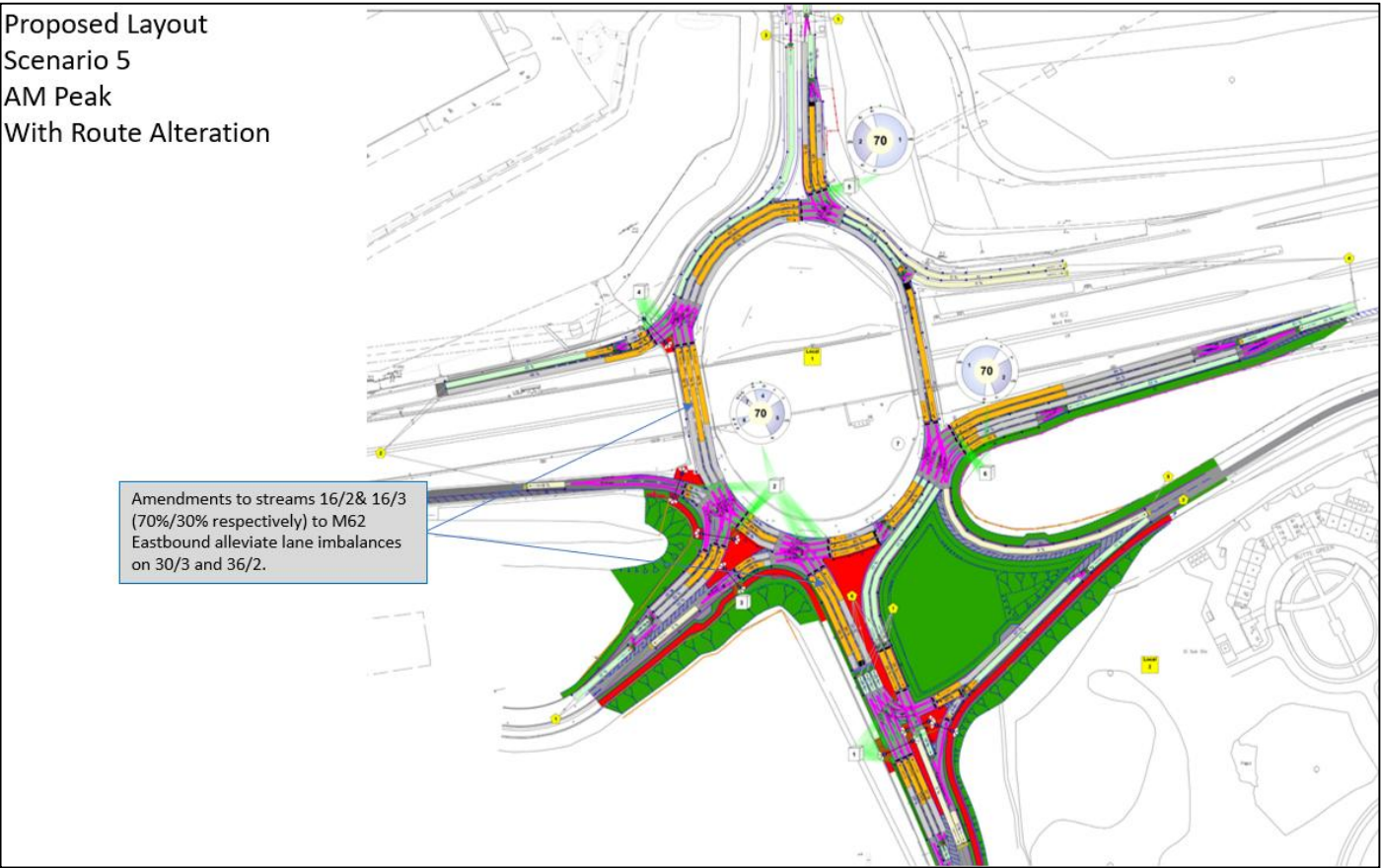


# TECHNICAL NOTE 2

DATE:	27 April 2020	CONFIDENTIALITY:	Public
SUBJECT:	Omega Zone 8: Response to Highways England (March 2020 Comments)		
PROJECT:	11191042	AUTHOR:	Adam Stone
CHECKED:	Douglas Bisset	APPROVED:	Douglas Bisset

Figures 3 and 4 show the Scenario 5 Proposed Mitigation model with route alteration as described in Table 1 in the AM and PM peak, respectively. Please note, these have also been included within Appendix A.

**Figure 3 – Scenario 5 Proposed Mitigation with Route Alteration (AM PEAK)**



## TECHNICAL NOTE 2

<b>DATE:</b>	27 April 2020	<b>CONFIDENTIALITY:</b>	Public
<b>SUBJECT:</b>	Omega Zone 8: Response to Highways England (March 2020 Comments)		
<b>PROJECT:</b>	11191042	<b>AUTHOR:</b>	Adam Stone
<b>CHECKED:</b>	Douglas Bisset	<b>APPROVED:</b>	Douglas Bisset

**Figure 4 – Scenario 5 Proposed Mitigation with Route Alteration (PM PEAK)**



Figures 3 and 4 demonstrate the amendments to lane usage proportions on streams 16/2 and 16/3 for traffic travelling to the M62 Eastbound alleviate the lane imbalances on the circulatory carriageway. This more closely reflects the anticipated operation of the roundabout in both peak hours and is considered to be reflective of how drivers will behave in reality.

The figures demonstrate that TRANSYT cannot appropriately anticipate driver behaviour beyond the entry stop line, particularly when the circulatory carriageway is not consistent throughout the junction. In conclusion, it is considered that the approach applied is entirely reasonable and accords with advice in the TRANSYT User Guide.

## TECHNICAL NOTE 2

<b>DATE:</b>	27 April 2020	<b>CONFIDENTIALITY:</b>	Public
<b>SUBJECT:</b>	Omega Zone 8: Response to Highways England (March 2020 Comments)		
<b>PROJECT:</b>	11191042	<b>AUTHOR:</b>	Adam Stone
<b>CHECKED:</b>	Douglas Bisset	<b>APPROVED:</b>	Douglas Bisset

### Highways England Point 13 – Scenario 5 flow discrepancy & reassessment

#### Highways England Comment as per Technical Note Review

*A revised assessment has been undertaken including the amended B8 traffic flows (as outlined above in point 8), as well as amended HGV trips for the Mountpark and Zones 1-2 B2/B8 developments, which had not previously been converted into PCUs.*

*The Technical Note provided only appears to contain AM peak traffic flows in Appendix A. Please could the PM peak flows also be provided.*

*The results of the scenario 5 assessment (with mitigation) indicate that generally the junction will operate over practical capacity but within absolute capacity. Three lanes (M62 Eastbound off slip in the AM and Skyline Drive in the PM) exceed a DoS value of 90%. The analysis also indicates that the increase in queueing on these arms is predicted to be three PCUs or less. However, we consider that points 11 and 14 still need to be addressed regarding the manual intervention in traffic assignment between lanes and potential unequal lane usage due to exit merging. As such, the results may be revised.*

#### WSP Comments

Updated Scenario 2 and Scenario 5 traffic flows relating to the PM peak period have been included within Appendix B.



## TECHNICAL NOTE 2

<b>DATE:</b>	27 April 2020	<b>CONFIDENTIALITY:</b>	Public
<b>SUBJECT:</b>	Omega Zone 8: Response to Highways England (March 2020 Comments)		
<b>PROJECT:</b>	11191042	<b>AUTHOR:</b>	Adam Stone
<b>CHECKED:</b>	Douglas Bisset	<b>APPROVED:</b>	Douglas Bisset

## Highways England Point 14 – Lane utilisation sensitivity test

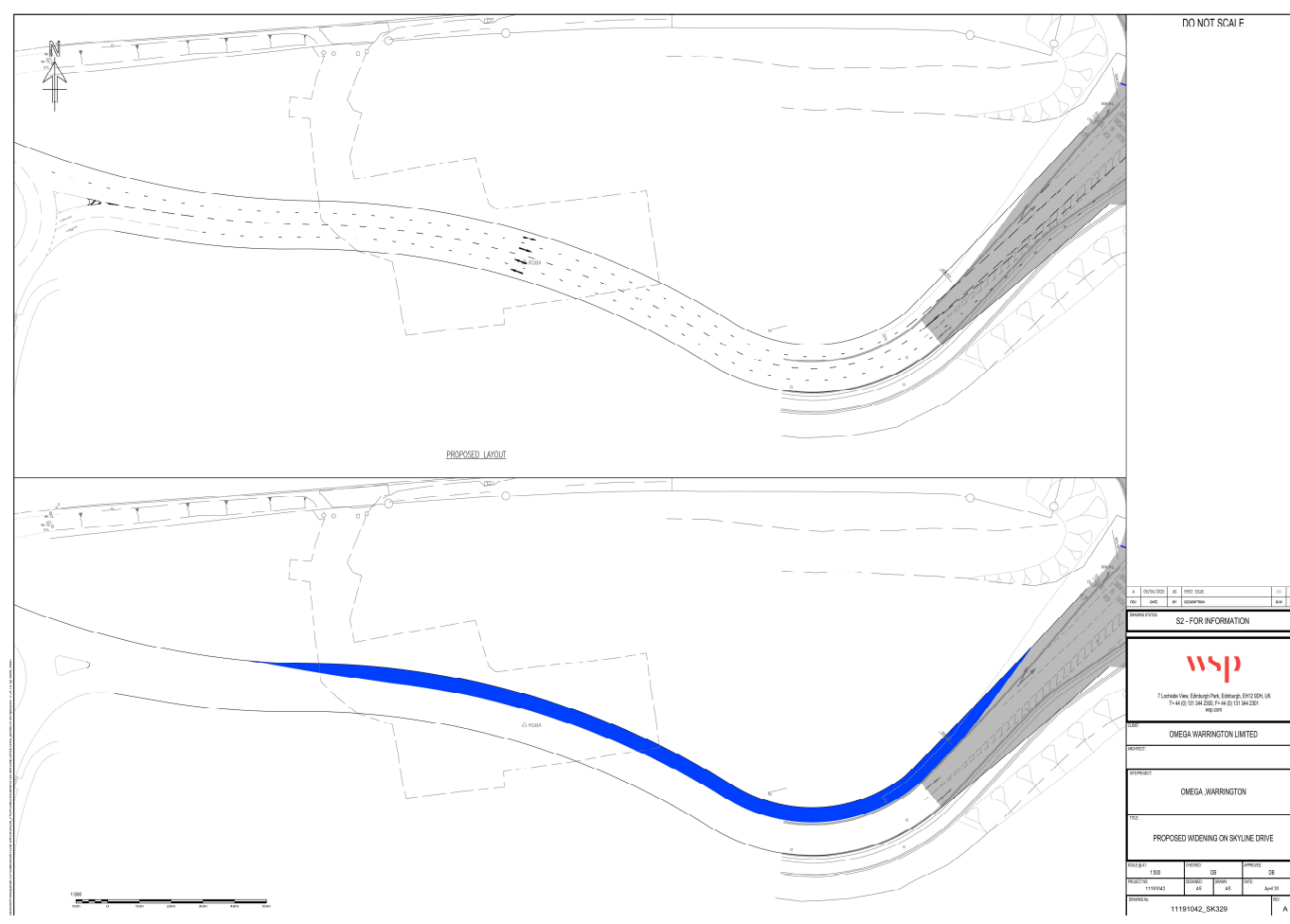
## Highways England Comment as per Technical Note Review

*This was requested to inform Highways England on the potential range of outcomes that may result from variation in lane utilisation. We would therefore recommend that these sensitivity tests are completed.*

## WSP Comments

As part of further highway improvement works on Skyline Drive, it is proposed to widen the carriageway to support two lanes of traffic in either direction between the Skyline Drive / Fairchild Road roundabout and M62 Junction 8. We have included a drawing of the associated works below, which has also been included within Appendix C.

### Figure 5– Proposed widening works on Skyline Drive



The continuation of two lanes westbound on Skyline Drive is considered to alleviate the concerns of unequal lane utilisation at the upstream stopline on Junction 8.



# TECHNICAL NOTE 2

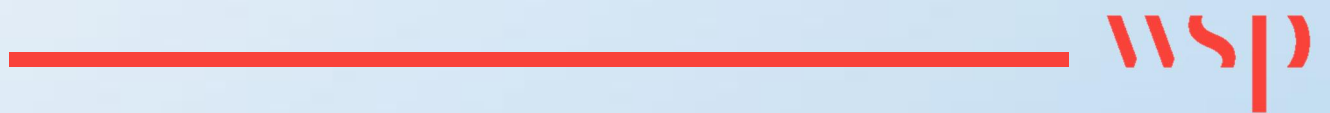
DATE:	27 April 2020	CONFIDENTIALITY:	Public
SUBJECT:	Omega Zone 8: Response to Highways England (March 2020 Comments)		
PROJECT:	11191042	AUTHOR:	Adam Stone
CHECKED:	Douglas Bisset	APPROVED:	Douglas Bisset

## CONCLUSION

It is concluded, through the provision of additional / updated information within this Technical Note, that Highways England’s remaining points have been clarified and addressed, fully demonstrating the impact of the proposed development.

# Appendix A

TRANSYT FIGURES

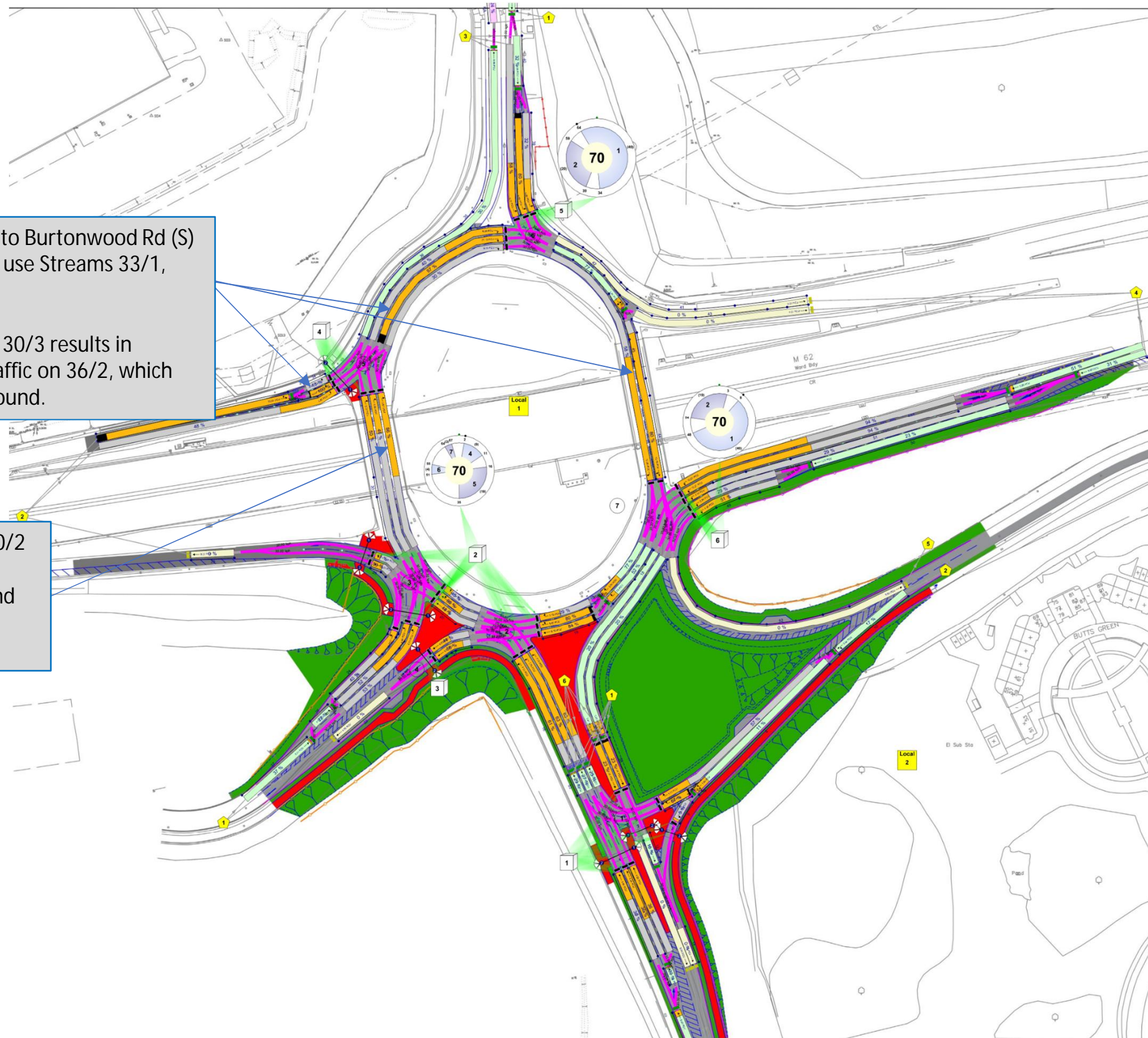


Proposed Layout  
Scenario 5  
AM Peak  
No Route Alteration

Traffic from M62 Eastbound to Burtonwood Rd (S) and Charon Way required to use Streams 33/1, 32/1, 36/2, 42/1 and 44/1.

Lane imbalance on 30/2 and 30/3 results in disproportionate levels of traffic on 36/2, which blocks back onto M62 Eastbound.

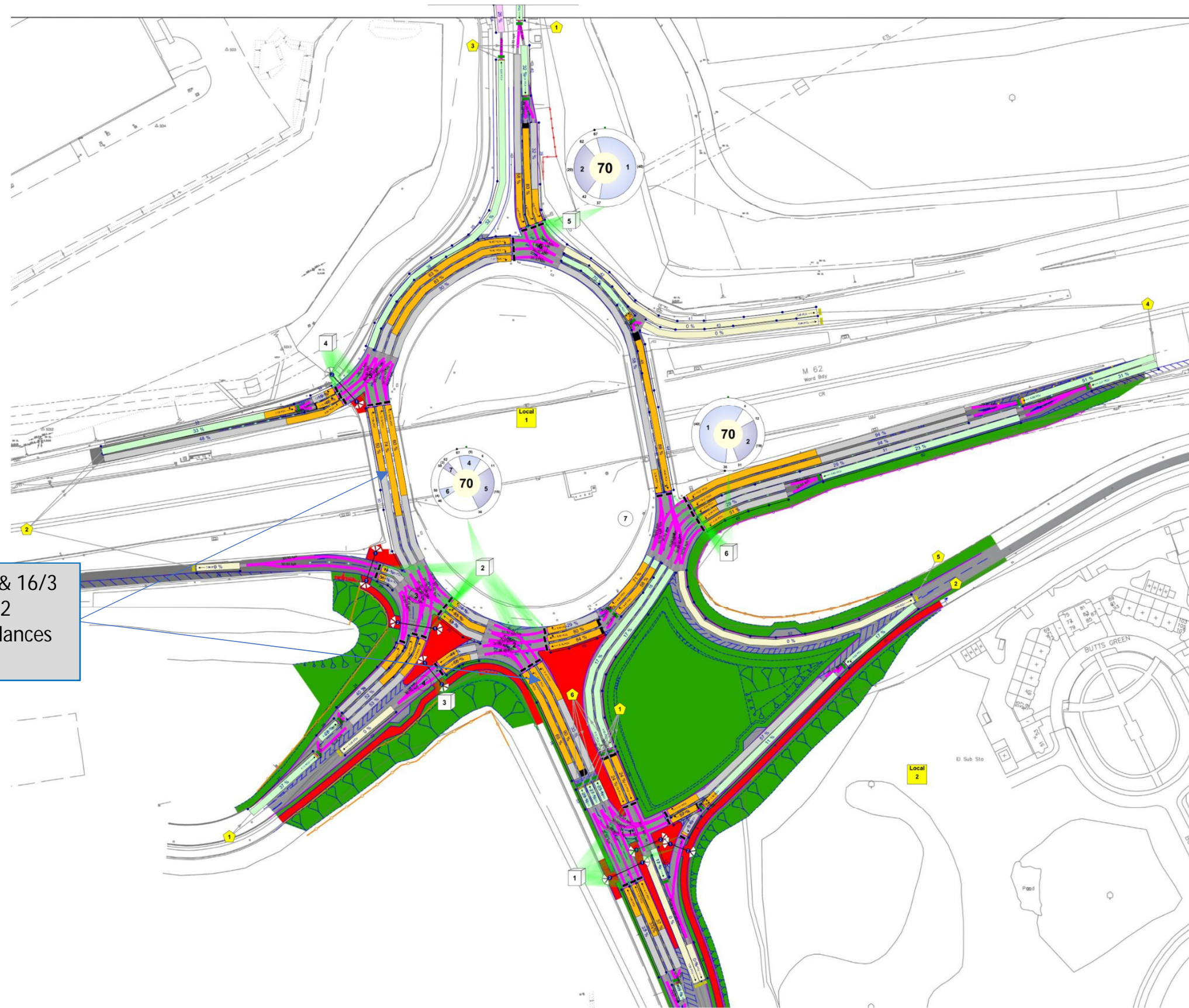
Lane Imbalance on 30/2 and 30/3 (and subsequently 36/1 and 36/2) towards M62 Eastbound





Proposed Layout  
Scenario 5  
AM Peak  
With Route Alteration

Amendments to streams 16/2& 16/3  
(70%/30% respectively) to M62  
Eastbound alleviate lane imbalances  
on 30/3 and 36/2.





bound to Burtonwood Rd (S)  
red to use Streams 33/1,  
4/1.

2 and 30/3 results in  
s of traffic on 36/2, which  
Eastbound.

ce on 30/2

36/1 and  
M62

From the 2004 Ordnance Survey 1:250 map with the permission of Ordnance Survey on  
the basis of the Ordnance Survey Licence. The Ordnance Survey is the copyright owner of the map data.

Lane imbalance on 30/2 and 30/3 results in disproportionate levels of traffic on 36/2, which blocks back onto M62 Eastbound.

Lane Imbalance on 30/2  
and 30/3 (and  
subsequently 36/1 and  
36/2) towards M62  
Eastbound



Proposed Layout  
Scenario 5  
PM Peak  
With Route Alteration

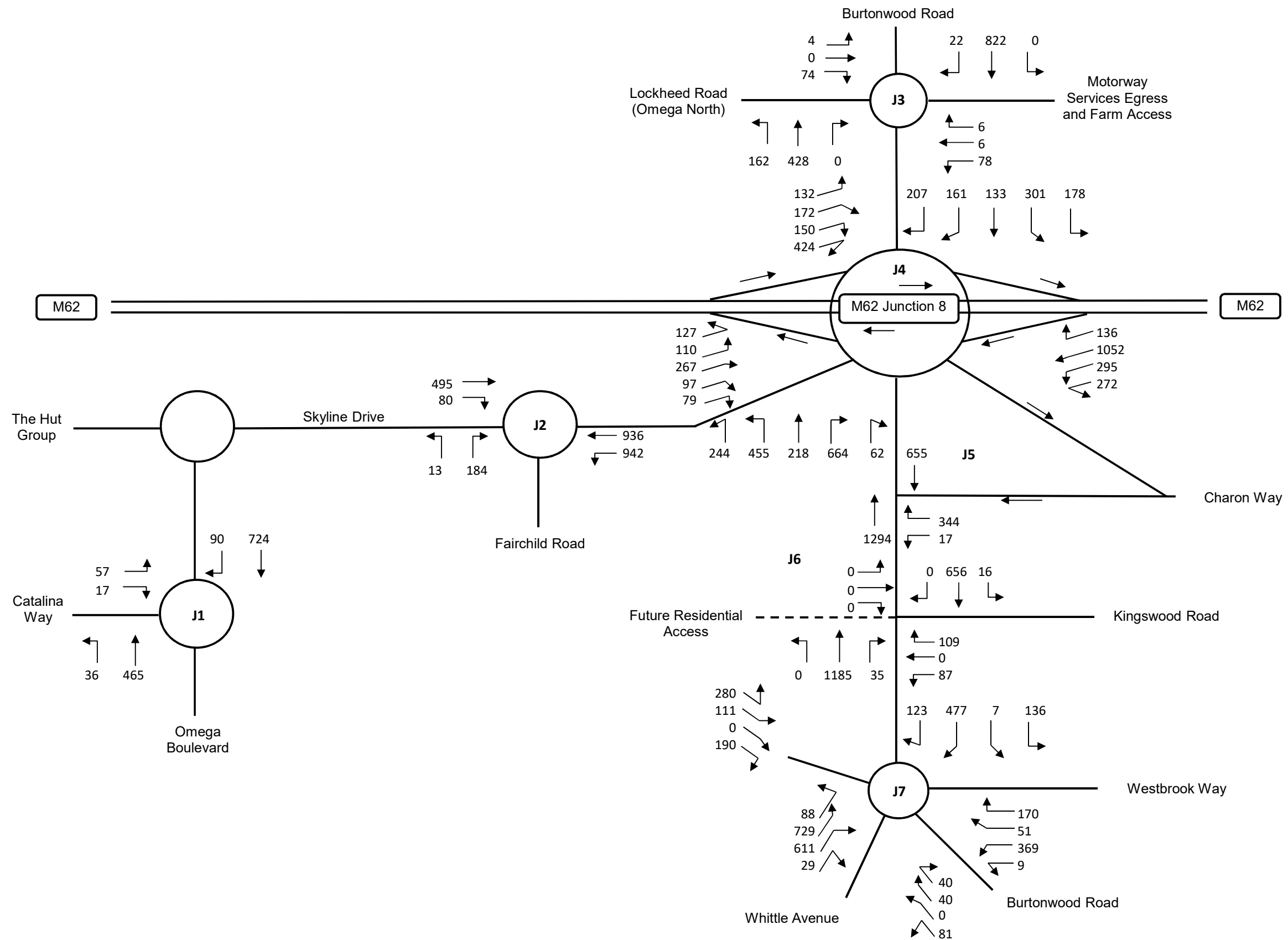
Amendments to streams 16/2& 16/3  
(56%/44% respectively) to M62  
Eastbound alleviate lane imbalances  
on 30/3 and 36/2.



# Appendix B

## NETWORK DIAGRAMS





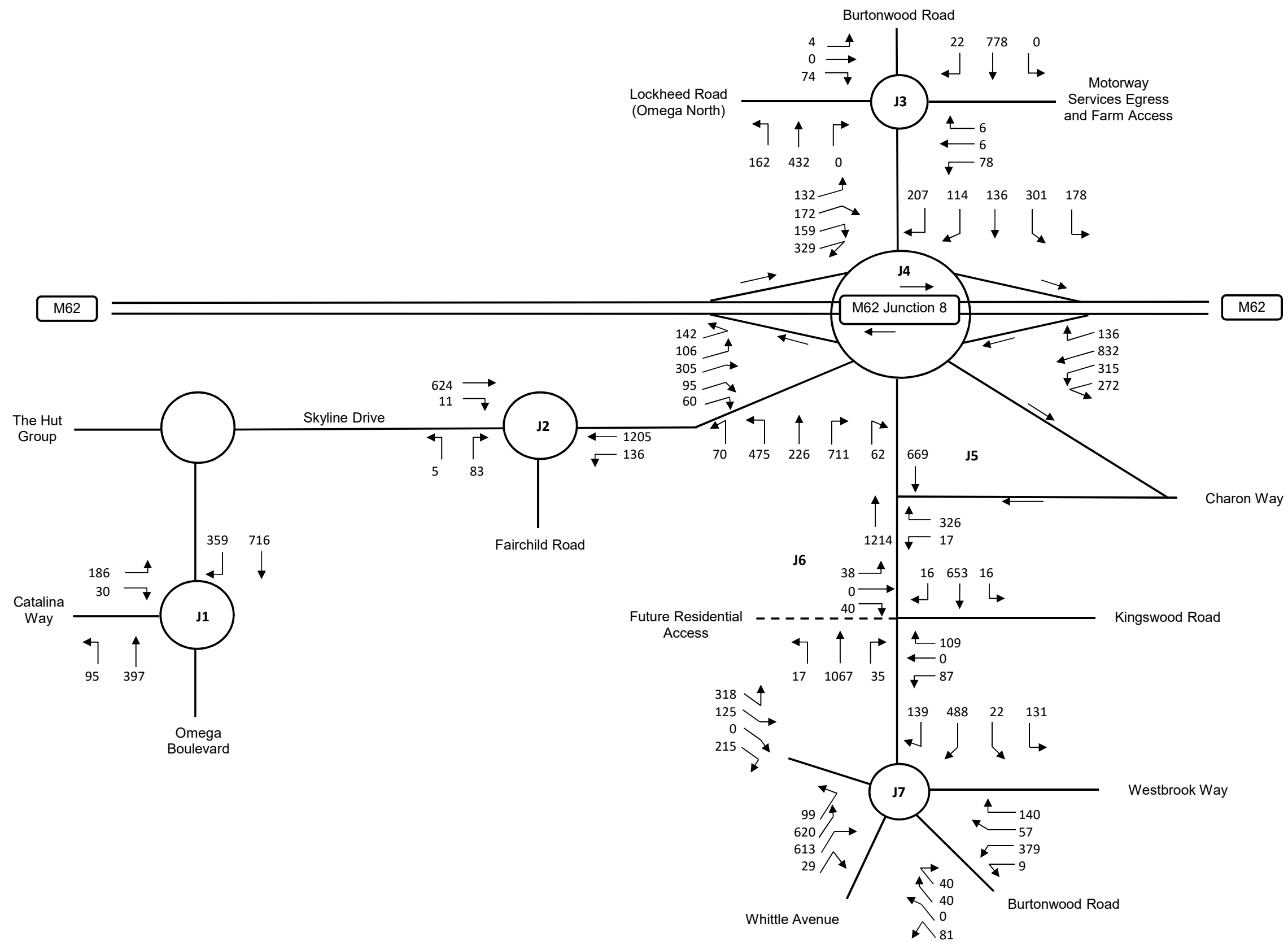
**TITLE**  
ZONE 8 OMEGA  
TRANSPORT ASSESSMENT

**SCENARIO**  
2021 Scenario 2  
AM PEAK HOUR

**FIGURE**  
**58**



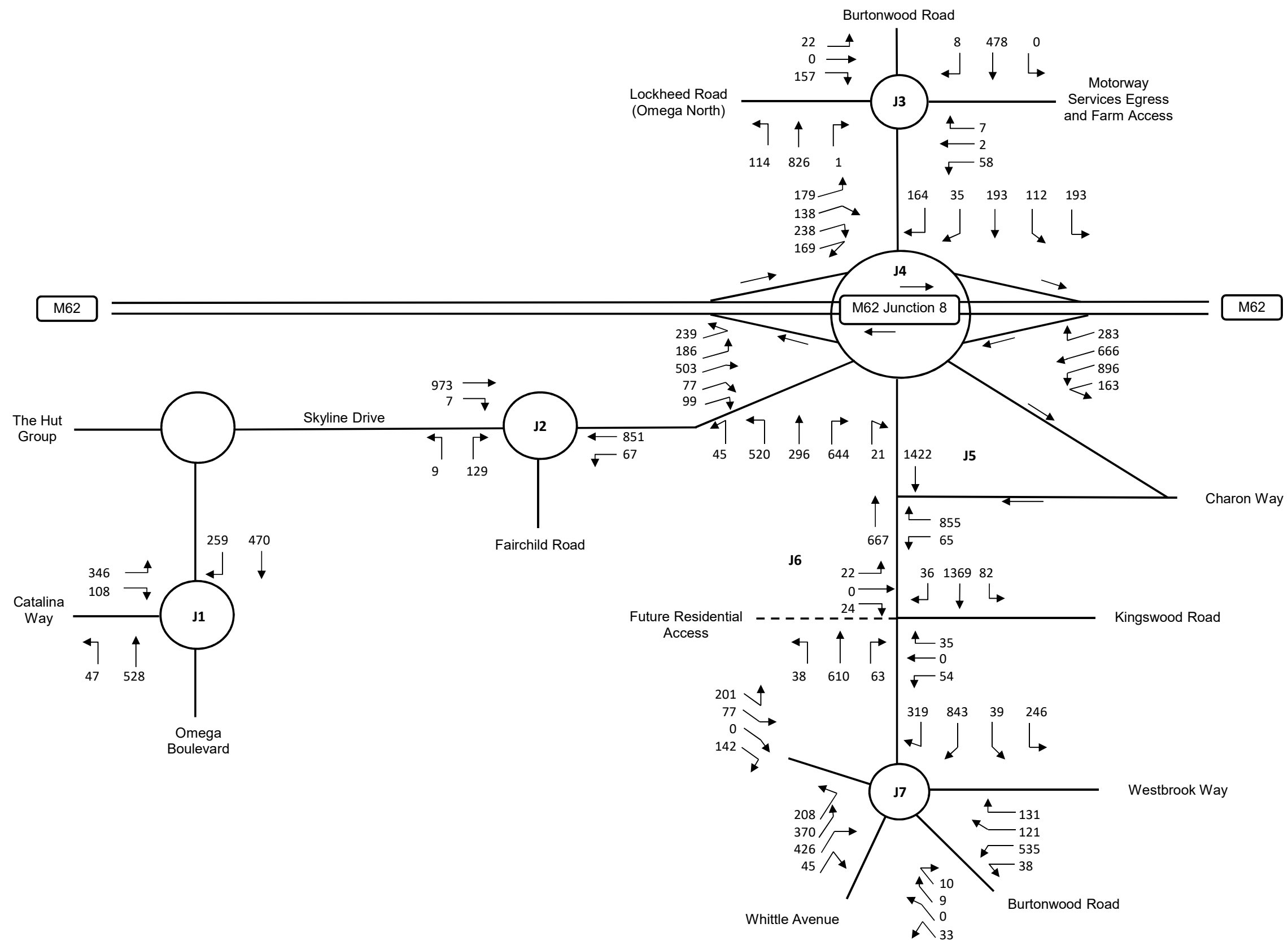




TITLE  
OMEGA WEST  
TRANSPORT ASSESSMENT

SI SCENARIO  
2021 Scenario 5  
AM PEAK HOUR

FIGURE  
64



TITLE  
OMEGA WEST  
TRANSPORT ASSESSMENT

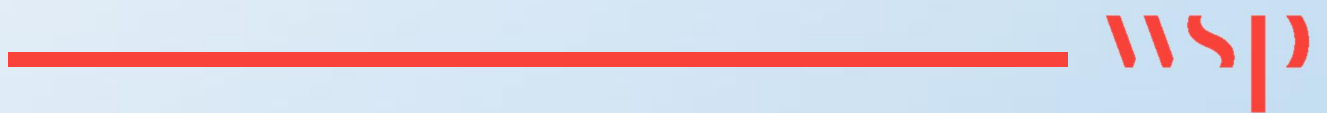
SCENARIO  
2021 Scenario 5  
PM PEAK HOUR

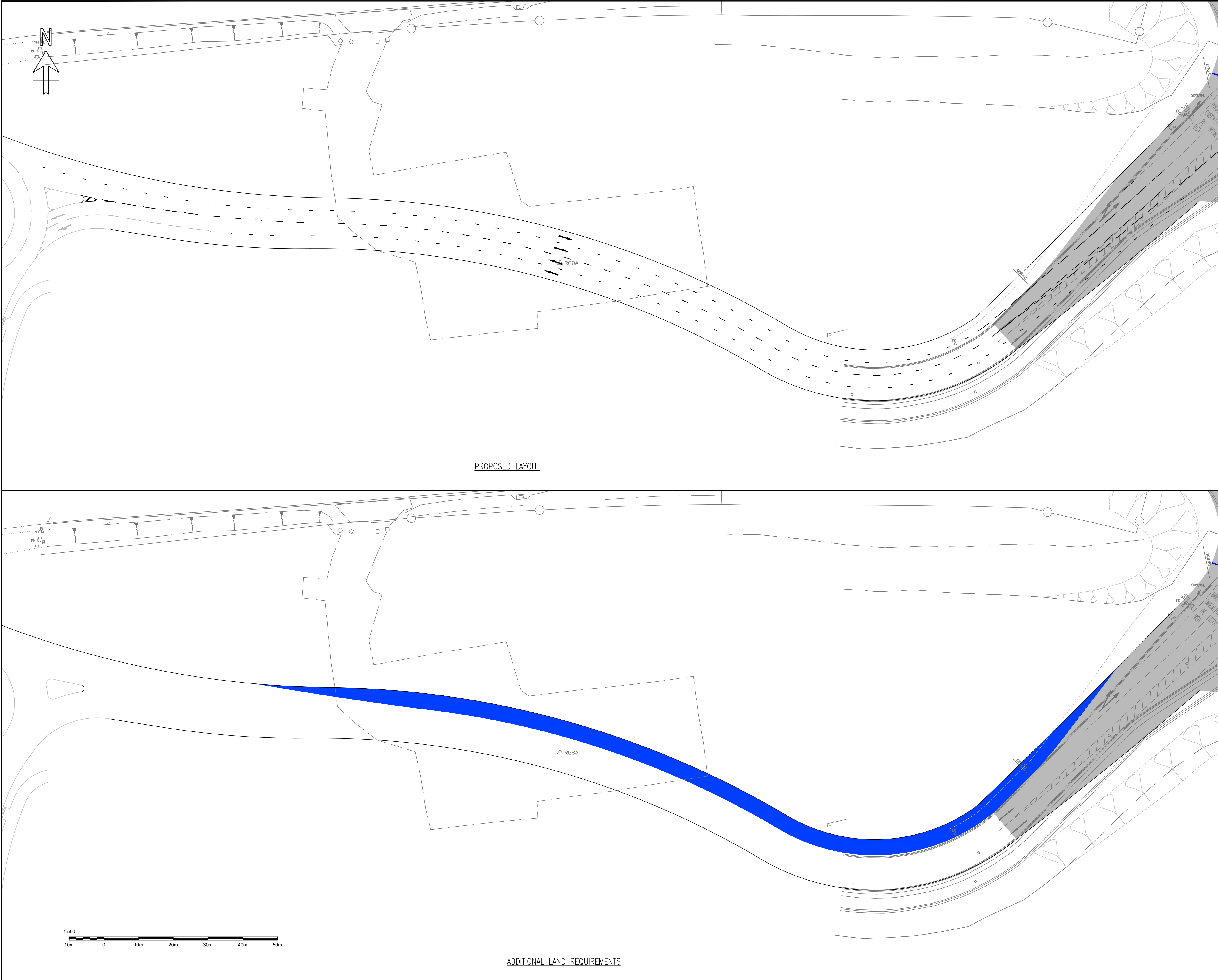
FIGURE

65

# Appendix C

PROPOSED WIDENING ON SKYLINE  
DRIVE





DO NOT SCALE

A	09/04/2020	AS	FIRST ISSUE	XXX	XXX
REV	DATE	BY	DESCRIPTION	CHK	APP

DRAWING STATUS:	S2 - FOR INFORMATION
-----------------	----------------------



7 Lochside View, Edinburgh Park, Edinburgh, EH12 9DH, UK  
T+ 44 (0) 131 344 2300, F+ 44 (0) 131 344 2301  
wsp.com

CLIENT:	OMEGA WARRINGTON LIMITED
---------	--------------------------

ARCHITECT:	
------------	--

SITE/PROJECT:	OMEGA ,WARRINGTON
---------------	-------------------

TITLE:	PROPOSED WIDENING ON SKYLINE DRIVE
--------	------------------------------------

SCALE @ A1:	1:500	CHECKED:	DB	APPROVED:	DB
PROJECT NO:	11191042	DESIGNED:	AS	DRAWN:	AS
				DATE:	April 20

DRAWING No:	11191042_SK329	REV:	A
-------------	----------------	------	---

© WSP UK Ltd
--------------

File name: C:\USERS\WASP\S002\DESKTOP\OMEGA\SKYLINE DRIVE\SK329 - PROPOSED WIDENING ON SKYLINE DRIVE.DWG, printed on 09 April 2020 17:24:15, by Stone, Adam