Hogarth Roundabout

Outcomes Definition Study

Technical Note

Issue Version	Issue Date	Prepared by	Approved by	Issued To
1.0	21/12/18	Monirul Islam	J. Worley	S. Clark

DRAFT

MAYOR OF LONDON

TRANSPORT FOR LONDON
EVERY JOURNEY MATTERS

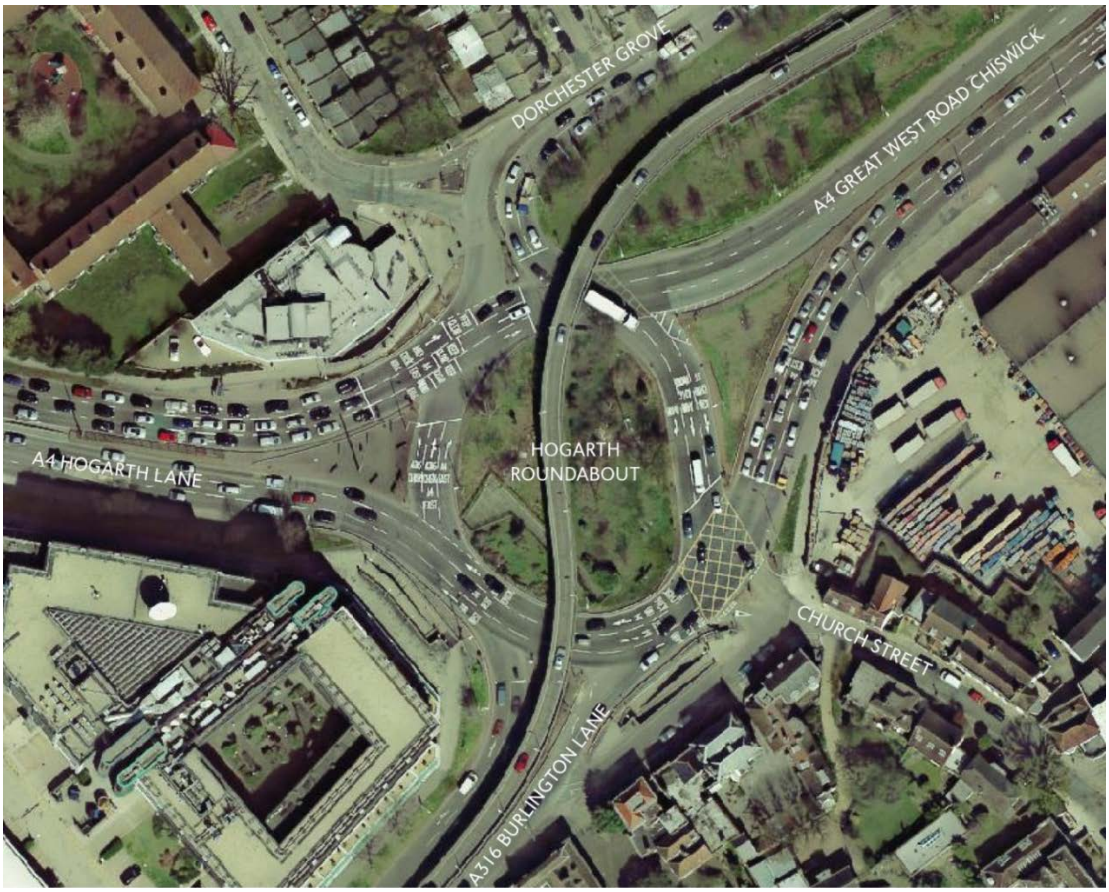
1. BACKGROUND/CONTEXT

The design brief had set the context, requirements and scope of works for high level outcome definition work within the ‘Vision Zero’ Safer Junctions programme.

The Safer Junctions programme is prioritising 73 junctions across London that have the poorest collision cords for safety led improvements. Based on location and mix of users, the Safer Junctions Programme has identified Hogarth Roundabout as potentially benefitting from more significant transformational change, where a range of Mayors Transport Strategy (MTS) & Healthy Streets Approach outcomes (walking, cycling and public transport) can be achieved alongside road danger reduction.

Hogarth Roundabout is situated at the junction of The A4, A316, Dorchester Grove and Church Street.

Figure 1: Existing Layout



2. SCOPE

Roads, Streets and Places (RSP) have been commissioned by Delivery Planning in conjunction with Surface Strategy and Network Development to investigate the following:

> *"This Brief requests optioneering at the three junctions, all of which are key nodes in London's road network. Optioneering must scope out the breadth of possible design options available that could address the recognised road danger challenge and realise identified Healthy Streets outcomes, covering the range of intervention scales from pragmatic to transformational change."*

The project objectives need to promote the Mayors Transport Strategy (MTS) of schemes' commitments to the 'Vision Zero' approach along with encouraging efficient and sustainable travel.

Outcome Definition design development

Key task: Scope a range of potential design options for each junction.

Key stage outcome: consider a breadth of possible design options that could address the recognised road danger challenge and realise identified Healthy Streets outcomes, covering the range of intervention scales from pragmatic to transformational change.

3. EXISTING INFORMATION

Existing bus facilities

- There is currently one bus route that serves the area between Chiswick High St and Richmond (via Hogarth's Roundabout). A bus stop servicing buses towards Richmond is located approximately 175m from the junction on Dorchester Grove. It's located on a segment of footway where there are no dropped kerbs and accessibility to the bus stop would be problematic, particularly for wheelchair users.
- On Burlington Lane, there are bus stops serving both directions in close proximity to the flyover. Both stops are served as inset bus stops and accessibility to them appears to be good.

The Table below shows the bus route and frequencies:

Bus Route	Buses per hour (Peak time operation)	Total buses per hour (Peak time operation)
190	Every 15 mins	4

Table 1 – existing bus routes and frequencies

Existing pedestrian and cycle facilities

The main cycle and pedestrian movements around the roundabout are accommodated by a series of subways that connect beneath Hogarth Roundabout to enable cyclists and pedestrians to cross without any conflicts with traffic (as shown below).


Shared pedestrian and cycle routes are provided on each approach, although some of these are relatively narrow and may need to be considered for improvement as part of the project to enhance the healthy streets aspects of the area.

Hogarth Lane has a shared footway on the northern side which is approximately 3m wide, followed by a 3m wide grass/brick verge in between the carriageway and footway.

The footway on the southern side of Hogarth Lane is approximately 4-5m wide. It has a 3-4m wide grass/concrete verge between the footway and carriageway, with trees planted within.

Hogarth Lane western arm

Hogarth Lane eastern arm

Existing Road Network

Hogarth Roundabout is a 4 armed roundabout, with a three lane approach and exit on the eastern and western arms, and a two lane approach on the northern and southern arms. The southern arm has a two lane exit and the northern arm has a single lane exit. The roundabout is signalised on all four approaches as well as internally, while a single lane width restricted flyover on Burlington Lane allows northbound traffic to bypass the roundabout and join the A4 in the eastbound direction.

Following on from discussions with the Network Performance Delivery team corridor manager, the following has been raised:

The roundabout operates mostly at or over capacity, especially during the peaks. The westbound queue can reach Hammersmith gyratory at times. ASTRID profile graphs and DoS data for the entry approaches to Hogarth Roundabout show the following below:

Westbound	AM: 90%	PM: 100%
Eastbound	AM: 100%	PM: 100%
Northbound	AM: 140%	PM: 120%
Southbound	AM: 140%	PM: 140%

Table 2: ASTRID data

The circulatory movements obviously operate at a lower DoS to keep the gyratory moving. There are no signalised pedestrian facilities at the gyratory. Bus route 190 is the only route to use the gyratory and that goes north/southbound. This shows that there are/aren't existing delays on the network during the peak hours, and that most of the options presented would require some form of modelling if the scheme were to be taken to feasibility stages.

Collisions analysis

A collision analysis undertaken for Hogarth Roundabout and its vicinity over the past 36 months (01/08/2014 to 31/07/2017) shows 58 collisions taking place.

Severity	Pedestrian	Pedal cycle	Motorcycle	Other	Total
Fatal	0	0	0	0	0
Serious	0	0	3	2	0
Slight	0	0	16	69	0

Table 3 – Injury severity by road user type

There were no collisions involving either pedestrians or cyclists (which could be attributed to a lack of at grade facilities) and there were 18 collisions involving motorcyclists. The majority of collisions on the roundabout were sideswipes as a result of poor lane discipline and vehicles changing lanes, as well as shunt collisions from sudden stopping. Weather and lighting do not appear to be factors, as most collisions occurred during the day and in dry weather, without winds.

There doesn't appear to be any trend as to which arm has more collisions. The collisions appear to be scattered throughout all sections of the roundabout.

4. DESIGN DEVELOPMENT

Quick win scheme –

Option 1 – Minor kerb works and amended road markings

- Cheap to implement and a quick win scheme
- Would resolve the significant side swipe and shunt collisions taking place at the roundabout by guiding vehicles into their correct lanes on entry to the roundabout
- Reduction of speed to 30mph with new signage the main A4 east and western arms
- Maintains existing subway facility with no at-grade crossings
- West-east movement would be have splitter island on the roundabout
- Expected reduction of capacity due reduced circulatory lanes means modelling would be required
- Few healthy street improvements so is expected to result in low uplift in Healthy Street Check for Designers score
- This option not a transformational scheme and is mainly focussed on collision reduction
- Would cost <£1M approximately to construct

Further potential options:

Option 1a – Option 1 + Pedestrian and Cycle facilities at grade

- All the potential benefits and disbenefits highlight for Option 1
- Potential to maintain both subway as well as provide at-grade toucan crossings connecting the Thames path to Chiswick High St via Devonshire Road in the north-west
- Improved feeling of security at street level with better lighting
- Potential to convert the roundabout area into a ‘place,’ to reduce the high speed and daunting existing scenario
- Not direct – delays to cyclists and pedestrians when crossing at grade
- Needs modelling as new stop line at the exit of the western arm will be required

- Internal stop line at the roundabout junction with the eastern arm reduces the length for vehicle stacking – potentially blocking back onto Dorchester Grove exit arm
- There were no pedestrian and cycle collisions in the area so by introducing at-grade crossings, interaction with vehicles may possibly increase these types of collision
- Would cost between £1-2M approximately to construct

Option 2 – 4 Lane approach

- All the potential benefits and disbenefits highlight for Option 1
- Would resolve the significant side swipe and shunt collisions taking place at the roundabout by guiding vehicles into their correct lanes on entry to the roundabout
- Maintains 3 lane east / west movements on the A4 to minimise impact to capacity compared to Options 1 & 1a
- Needs modelling as new stop line at the exit of the western arm will be required
- Internal stop line at the roundabout junction with the eastern arm reduces the length for vehicle stacking – potentially blocking back onto Dorchester Grove exit arm
- Construction of right turn slip in vicinity of bridge support will provide challenging
- Would cost between £2-5M approximately to construct

Option 3 – Signalised Junction

- Would be a transformational scheme for the area
- Reduces the side swiping/stopping collision types
- Improves on the Healthy Streets criteria
- Improved feeling of security at street level with better lighting
- Controlled crossings at surface level for pedestrians and cyclists
- Opportunities for SUDS and planting trees along with urban realm improvements for the area
- Pedestrian crossings not direct and will take longer than using the subway
- Significant land available for potential development
- Expected to reduce traffic capacity so possibly longer delays to traffic
- Removal of flyover will provide challenge
- Works to implement scheme will be challenging due to traffic management required on the A4
- Potentially an increase in congestion

- Would be expensive to implement (between £5-10M approximately to construct)

Option 4 – 2 Lane each direction underpass or flyover

- This option would be a significant transformational scheme which covers key aspects of the MTS objectives, provides significant opportunities for Urban Realm, pedestrian and cycle facilities as well as potentially improving delays to the road network
- Removes a major junction and pinch in the network between Heathrow and The City
- Smoother traffic flow for the A4 network
- Option mitigates the majority of existing collision types
- Improved cycle link between Thames Path and Chiswick High St
- Controlled crossings at surface level for pedestrians
- Opportunities for planting trees and providing SUDS solutions
- Significant land available for potential development
- Potential to improve air quality due to less congestion
- Modelling would be required for the slip road queue lengths due to single lane
- 2nd most expensive of the options
- Pedestrian crossings not direct and will take longer than using the subway
- Potential non-compliance to signals by cyclists and pedestrians
- Would cost upwards of approximately £100M to construct if the underpass option were to go ahead.
- Wider footways for pedestrians
- Potential savings on bus journey times with better signal operation for the junction (subject to modelling)
- Better lighting should ensure a more safer environment (compared to the subways)
- Removal of subway would reduce maintenance cost
- There is no existing cycle or pedestrian collisions in the area so by introducing this interaction with vehicles it may possibly increase

Option 5 – 3 Lane each direction underpass or flyover

- All the potential benefits and disbenefits from Option 4
- Most expensive of the options, costing upwards of £125M to construct if they underpass option were to go ahead
- Land take (potential CPO) would be required for the northwest section of the roundabout

It is important to note that when analysing the Options Appraisal Table in Appendix B, the RAG colouring status was determined by how RSP expect the existing and proposed options perform, and not by comparing the proposed options to the existing, which would have produced a different colour grid. The options have been banded by a RAG status of Dark Green, Green, Amber, Red, and Dark Red – where Dark Green is extremely beneficial and Dark Red having the most Disbenefit.

The scoring of the options has been broken down into three categories which are:

User Impacts: This focuses on the high level impact expected from the option to all user modes.

Values/Benefits: This focuses on Security and Crime, Safety, Healthy Streets indicators and Air Quality.

Deliverability: This focuses on the technical feasibility of constructing the scheme and the high level estimated cost of constructing the scheme.

5. CONCLUSION & RECOMMENDATIONS

The Brief requested the options for Hogarth Roundabout to "…. scope out the breadth of possible design options available that could address the recognised road danger challenge and realise identified Healthy Streets outcomes, covering the range of intervention scales from pragmatic to transformational change."

The designs presented by RSP range from a 'Do minimum' option to a vast transformation scheme which requires tunnelling for the underpass option or construction of a six lane flyover.

With the exception of Option 1 and 1a, the other proposed options have benefits ranging from minor to significant, when judged against achieving Mayoral priorities that are set out in the Mayor Transport Strategy 2018. Each option would need to be assessed during the feasibility stage, calculating benefits against the cost of build to determine which provides the most value for money and which will have most support from stakeholders.

Some options may be cheaper to construct and would be expected to mitigate some of the existing collisions. However, they may also reduce capacity and in essence, potentially worsen the air quality if there is a significant increase in congestion.

RSP have analysed the proposed options at a high level for the Hogarth Roundabout, and the assessment is shown in Appendix B of this report. Consequently, RSP recommend that:

- As Options 1 and 1a are considered to be relatively inexpensive, these could be considered quick win solutions that address the main collision types and are likely to be fairly straight forward to implement. However, they could result in a reduction in traffic capacity.
- If the reduction in traffic capacity resulting from Options 1 and 1a are not palatable, then Option 2 could be considered. This provides an additional lane on the A4 westbound approach which would help to offset some of the reduction in traffic capacity. It would be more expensive to implement and carry greater complexity and risk than Options 1 and 1a.

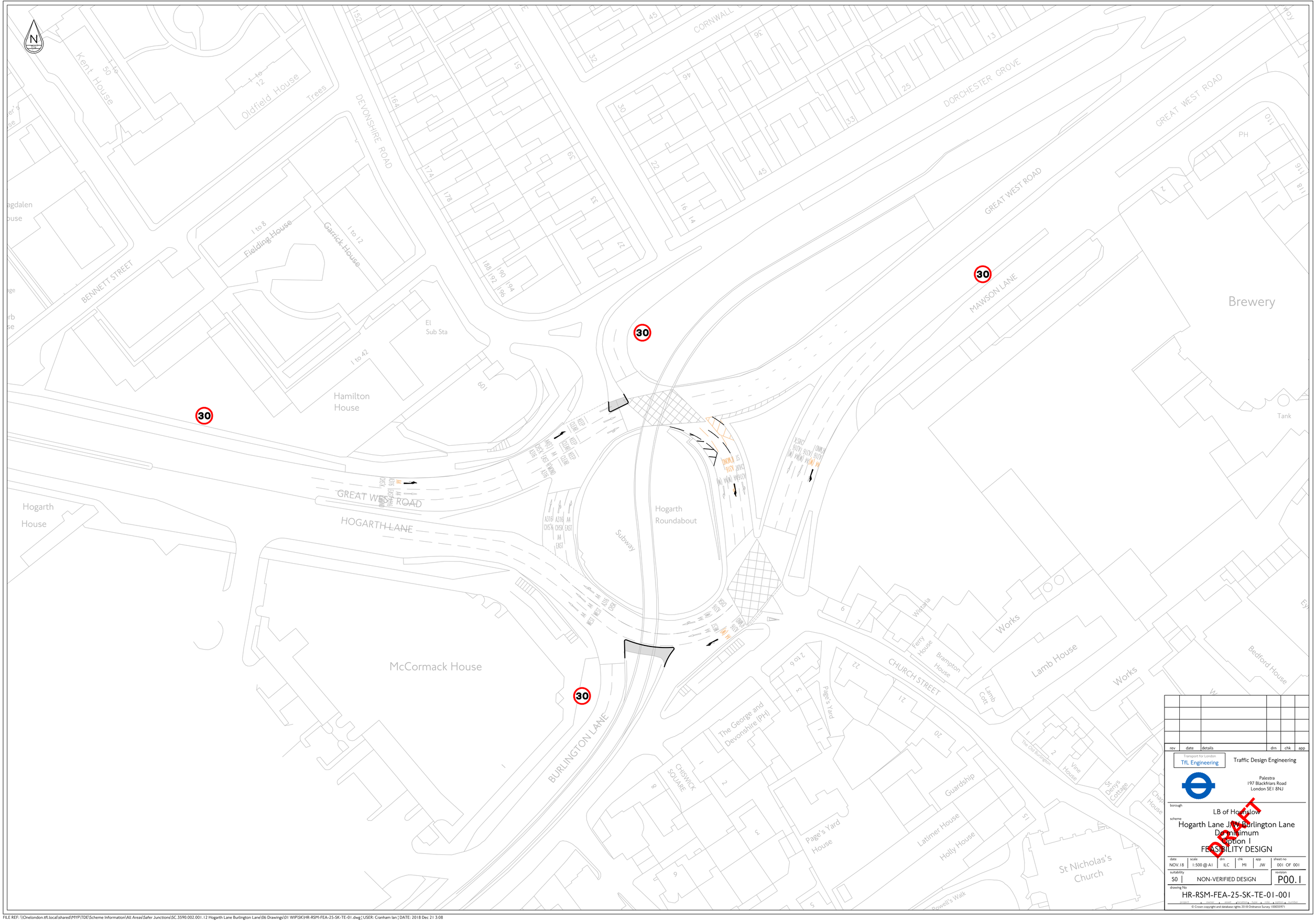
Therefore, in the short term, Options 1, 1a and 2 should be taken into feasibility design to further assess the viability of each.

However, Option 1, 1a and 2 do not provide a significantly transformational scheme at the junction. If there is the political and financial appetite to introduce a truly transformational scheme at the junction then Options 3-5 could be considered.

- Option 3 completely removes the gyratory and flyover, providing significant opportunities for new developments and urban realm, cycling and pedestrian improvements. It would be cheaper to build than Options 4 and 5 and have lower future maintenance costs than the current flyover has. However, it would be expected to have the highest impact on general traffic flow in the area, although this would need to be confirmed by modelling. This could have a significant detrimental impact to air quality.
- Options 4 and 5 provide significantly greater traffic capacity at the junction, particularly for traffic on the A4, and would address many of the collisions that currently occur at the junction. They would also provide significant opportunities to improve pedestrian and cycle facilities in the locality.
- However, both options would be very expensive and complex to build and introduce new maintenance obligations for TfL. Depending on which option was chosen, land take requirements could add significant time and risk to the programme.

Appendices

Appendix A – Options 1-5



rev	date	details	drn	chk	app

Transport for London
TfL Engineering

Traffic Design Engineering

Palestra
197 Blackfriars Road
London SE1 8NJ

borough
LB of Hounslow

scheme
Hogarth Lane J/W Burlington Lane
Do Minimum
Option 1
FEASIBILITY DESIGN

DEFT

date	scale	drn	chk	app	sheet no
NOV.18	1:500 @ A1	ILC	MI	JW	001 OF 001

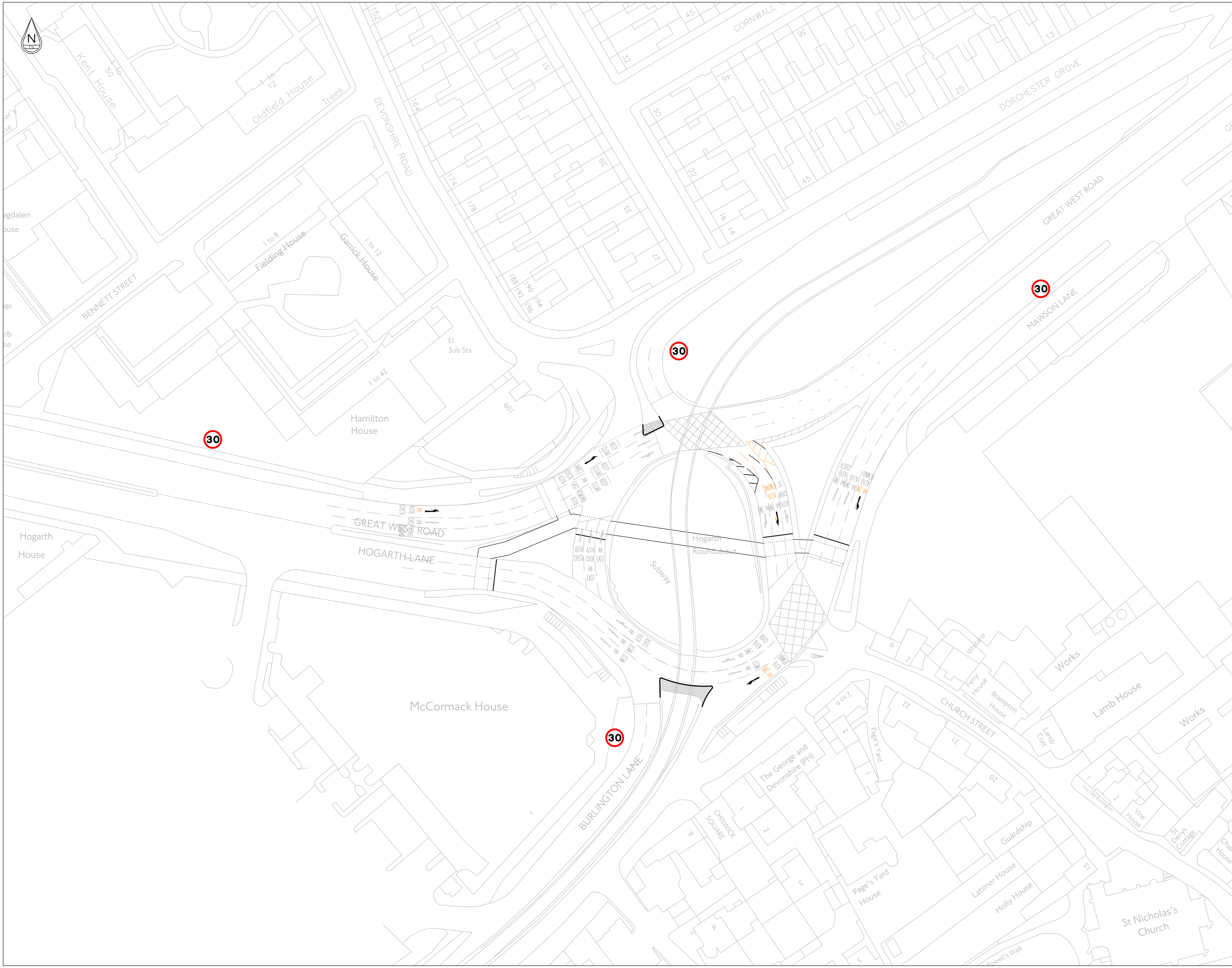
suitability		revision
S0	NON-VERIFIED DESIGN	P00.1

drawing No
HR-RSM-FEA-25-SK-TE-01-001

project | originator | volume | location | type | role | number

© Crown copyright and database rights 2018 Ordnance Survey 100035971

FILE REF: \\Onelondon.tfl.local\shared\MYP\TDE\Scheme Information\All Areas\Safer Junctions\SC.3590.002.001.12 Hogarth Lane Burlington Lane\06 Drawings\01 WIP\SK\HR-RSM-FEA-25-SK-TE-01.dwg | USER: Cranham Ian | DATE: 2018 Dec 21 3:08



rev	date	details	drn	chk	app

Transport for London
TfL Engineering

Traffic Design Engineering

Palestra
197 Blackfriars Road
London SE1 8NJ

borough
LB of Hounslow

scheme
Hogarth Lane J/W Burlington Lane
Surface crossings with 2 lanes on A4
Option 1a
FEASIBILITY DESIGN

DRAFT

date	scale	drn	chk	app	sheet no
NOV.18	1:500 @ A1	ILC	MI	JW	001 OF 001

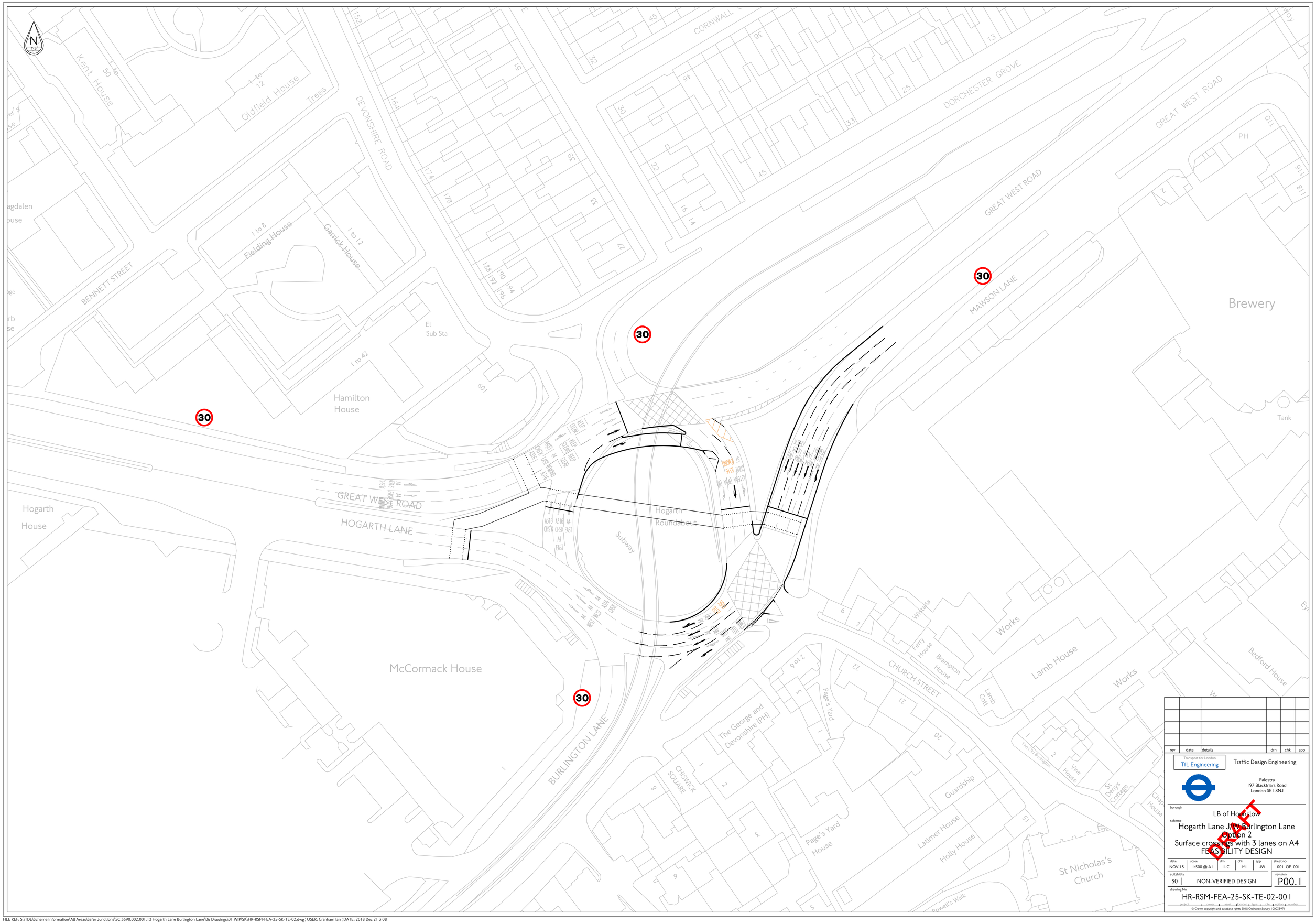
suitability: S0 | NON-VERIFIED DESIGN

revision: P00.1

drawing No
HR-RSM-FEA-25-SK-TE-01A-001
project | owner | asset | location | type | role | option | number

© Crown copyright and database rights 2018 Ordnance Survey 100035971

FILE REF: S:\TDE\Scheme Information\All Areas\Safer Junctions\SC.3590.002.001.12 Hogarth Lane Burlington Lane\06 Drawings\01 WIP\SK\HR-RSM-FEA-25-SK-TE-01a.dwg ¦ USER: Cranham Ian ¦ DATE: 2018 Dec 21 3:08



rev	date	details	drn	chk	app

Transport for London
TfL Engineering

Traffic Design Engineering

Palestra
197 Blackfriars Road
London SE1 8NJ

borough
LB of Hounslow

scheme
Hogarth Lane J/W Burlington Lane
Option 2
Surface crossings with 3 lanes on A4
FEASIBILITY DESIGN

date	scale	drn	chk	app	sheet no
NOV.18	1:500 @ A1	ILC	MI	JW	001 OF 001

suitability		revision
S0	NON-VERIFIED DESIGN	P00.1

drawing No
HR-RSM-FEA-25-SK-TE-02-001

project | originator | volume | level/zone | type | role | number | suitability

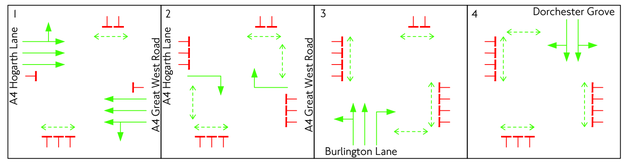
© Crown copyright and database rights 2018 Ordnance Survey 100035971

EXT

FILE REF: S:\TDE\Scheme Information\All Areas\Safer Junctions\SC.3590.002.001.12 Hogarth Lane Burlington Lane\06 Drawings\01 WIP\SK\HR-RSM-FEA-25-SK-TE-02.dwg ¦ USER: Cranham Ian ¦ DATE: 2018 Dec 21 3:08

A4 Hogarth Lane/Burlington Lane/Great West Road

Proposed Method Of Control - option 1



DRAFT

rev	date	details	drn	chk	app

Transport for London
TfL Engineering

Traffic Design Engineering

Palestra
197 Blackfriars Road
London SE1 8NJ

borough
LB of Hounslow

scheme
Hogarth Lane J/W Burlington Lane
Option 3
Junction
FEASIBILITY DESIGN

date	scale	drn	chk	app	sheet no
NOV.18	1:500 @ A1	ILC	MI	JW	001 OF 001

suitability
S0 | NON-VERIFIED DESIGN

revision
P00.1

drawing No
HR-RSM-FEA-25-SK-TE-03-001

project | originator | zone | location | type | role | number

© Crown copyright and database rights 2018 Ordnance Survey 100035971

FILE REF: S:\TDE\Scheme Information\All Areas\Safer Junctions\SC_3590.002.001.12 Hogarth Lane Burlington Lane\06 Drawings\01 WIP\SK\HR-RSM-FEA-25-SK-TE-03.dwg | USER: Cranham Ian | DATE: 2018 Dec 21 3:08

HOGARTH LANE
MAWSON LANE
BURLINGTON LANE
CHURCH STREET
TURN RIGHT
TURN LEFT
Kent House
Oldfield House
Trees
Fielding House
Garrick House
Hamilton House
Hogarth House
McCormack House
Brewery
PH
Tank
Works
Lamb House
Brampton House
Lamb Cott
Terry House
Page's Yard
Page's Yard House
The George Beaconsfire (PH)
Guardship
Latimer House
Holly House
St Nicholas's Church
Vine House
St Mary's Cottage
Bedford House
Subway
Sub Sta

rev	date	details	drn	chk	app

Transport for London
TfL Engineering

Traffic Design Engineering

Palestra
197 Blackfriars Road
London SE1 8NJ

borough
LB of Hounslow

scheme
Hogarth Lane J/W Burlington Lane
Option 4
2 Lanes Underpass
FEASIBILITY DESIGN

DRAFT

date	scale	drn	chk	app	sheet no
NOV 18	1:500 @ A1	MI	ILC	JW	001 OF 001

suitability		revision
S0	NON-VERIFIED DESIGN	P00.1

drawing No
HR-RSM-FEA-25-SK-TE-04-001

project originator zone/sys level type role number

© Crown copyright and database rights 2018 Ordnance Survey 100035971

FILE REF: S:\TDE\Scheme Information\All Areas\Safer Junctions\SC.3590.002.001.12 Hogarth Lane Burlington Lane\06 Drawings\01 WIP\SK\HR-RSM-FEA-25-SK-TE-04.dwg ¦ USER: Cranham Ian ¦ DATE: 2018 Dec 21 3:09

rev	date	details	drn	chk	app

Transport for London
TfL Engineering

Traffic Design Engineering

Palestra
197 Blackfriars Road
London SE1 8NJ

borough
LB of Hounslow

scheme
Hogarth Lane J/W Burlington Lane
Option 5
3 Lanes Underpass
FEASIBILITY DESIGN

DRAFT

date	scale	drn	chk	app	sheet no
NOV.18	1:500 @ A1	MI	ILC	JW	001 OF 001

suitability: S0 | NON-VERIFIED DESIGN

revision: P00.1

drawing No
HR-RSM-FEA-25-SK-TE-05-001
project | owner | asset | location | type | role | option | number

© Crown copyright and database rights 2018 Ordnance Survey 100035971

FILE REF: S:\TDE\Scheme Information\All Areas\Safer Junctions\SC.3590.002.001.12 Hogarth Lane Burlington Lane\06 Drawings\01 WIP\SK\HR-RSM-FEA-25-SK-TE-05.dwg ¦ USER: Cranham Ian ¦ DATE: 2018 Dec 21 3:09

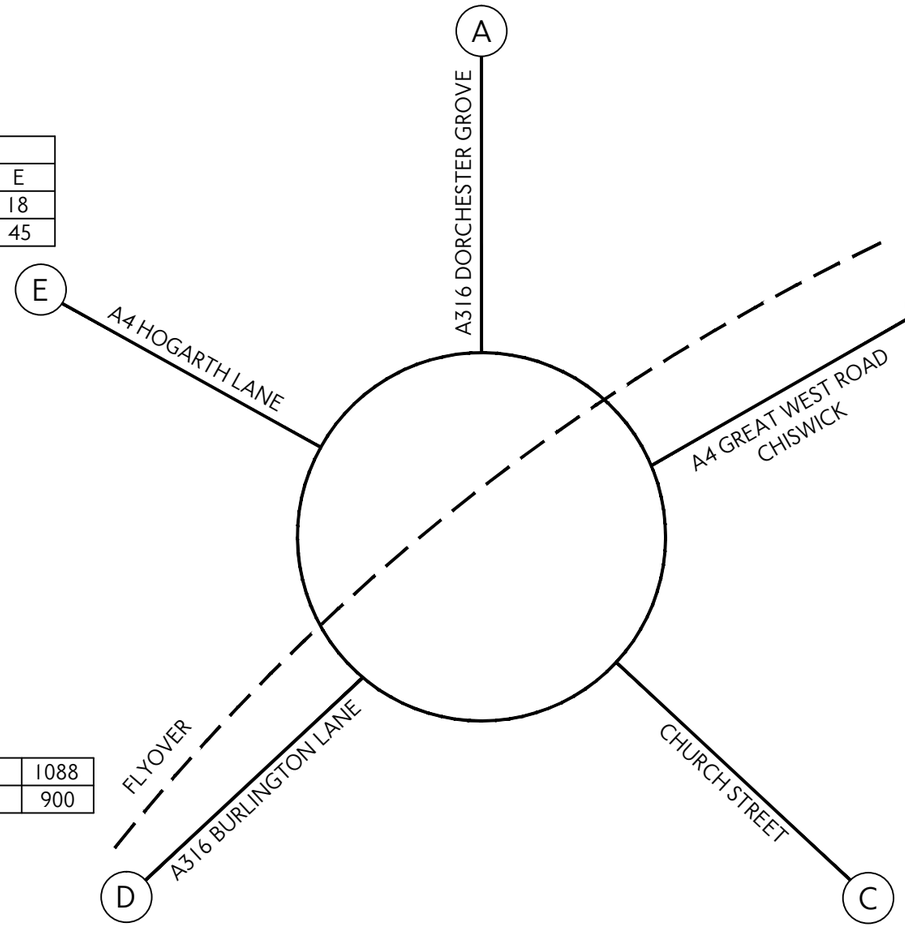
Appendix B – Outcome Definition Appraisal of Options

				User Impacts							Values/Benefits				Deliverability		Potetial Implementation Cost		
Options Category	**Option**	**Option Description**	**Drawing No.**	**General Traffic**	**Buses**	**Taxis**	**Freight**	**Motor Cycles**	**Cyclists**	**Pedestrians**	**Security and Crime**	**Safety**	**Healthy Streets**	**Air Quality**	**Technical Feasibility and risk**	**Cost**		**Key Benefits**	**Key Challenges**
Existing	0														N/A	N/A	N/A	N/A	N/A
Minor Infrastructure	1	**Minor kerb works and amended road markings**															<£1M	• Cheap to implement and a quick win scheme • Reduction of speed (30mph) with enforcement required on the main A4 east and western arms • Would resolve the significant side swipe and shunt collisions taking place at the roundabout by guiding vehicles into their correct lanes on entry to the roundabout	• Maintains existing subway facility with no at grade crossing • West-east movement would be have splitter island on the roundabout • Reduction of capacity due reduced circulatory lanes means modelling would be required • Doesn't meet MTS and would score low when assessing via the Healthy Streets toolkit • This option not a transformational scheme • Reduction in capacity due to two circulatory lanes
	1a	**Option 1 + Pedestrian and Cycle facilities at grade**															£1M-2M	• Potential to maintain both subway as well as provide at grade toucan crossings • Improved feeling of security at street level with better lighting • Potential to convert the roundabout area into a 'place,' to reduce the high speed and daunting existing scenario	• Not direct – delays to cyclists and pedestrians when crossing at grade • Needs modelling as new stop line at the exit of the western arm will be required • Internal stop line at the roundabout junction with the eastern arm reduces the length for vehicle stacking – potentially blocking back onto Dorchester Grove exit arm • No existing collisions for pedestrians or cyclists recoreded from XXX - XXX • Reduction in capacity due to two circulatory lanes
	2	**4 Lane approach on westbound**															£2M-5M	• Slight improvement to network and Capacity due to 4 lanes on entry • Improved feeling of security at street level with better lighting • Potential to convert the roundabout area into a 'place,' to reduce the high speed and daunting existing scenario • More capacity than Option 1a	• Not direct – delays to cyclists and pedestrians when crossing at grade • Needs modelling as new stop line at the exit of the western arm will be required • Internal stop line at the roundabout junction with the eastern arm reduces the length for vehicle stacking – potentially blocking back onto Dorchester Grove exit arm • No existing collisions for pedestrians or cyclists recoreded from XXX - XXX • Reduction in capacity due to two circulatory lanes
Major Infrastructure	3	**Signalised Junction**															£5M-10M	• Reduces the collision types • Meets the Healthy Streets criteria • Transformational scheme • Commercial or Green infrastructure development possibilities	• Possibly longer delays to traffic • Removal of flyover will provide challange • Works to implement scheme will be challenging • There are no existing cycle and pedestrian collisions in the area • Increase in congestion
	4	**2 Lane each direction underpass or flyover**															£10M+	• Meets the Mayors objectives without causing delays to the road network • Reduces a major junction and pinch in the network between Heathrow and The City • Smoother traffic flow for the A4 network • Improved cycle link between Thames Path and Chiswick High St • Controlled crossings as surface level for pedestrians • Opportunities for planting trees • Significant land available for potential development • Cleaner air due to less congestion • Should have a significant reduction in the types of collisions at the roundabout • Modelling would be required for the slip road queue lengths due to single lane • Wider footways for pedestrians • Potential savings on bus journey times with better signal operation for the junction. • Better lighting should ensure safer environment than the subways • Removal of subway would reduce maintenance cost • Remains within the existing highway boundary	• 2nd most expensive of the options • Pedestrian crossings not direct and will take longer than using the subway • Potential non-compliance to signals by cyclists and pedestrians • Funding may not be available • Removal of flyover will provide challange • Works to implement scheme will be challenging
	5	**3 Lane each direction underpass or flyover**															£10M+	• Meets the Mayors objectives without causing delays to the road network • Reduces a major junction and pinch in the network between Heathrow and The City • Smoother traffic flow for the A4 network • Improved cycle link between Thames Path and Chiswick High St • Controlled crossings as surface level for pedestrians • Opportunities for planting trees • Significant land available for potential development • Cleaner air due to less congestion • Should have a significant reduction in the types of collisions at the roundabout • Modelling would be required for the slip road queue lengths due to single lane • Wider footways for pedestrians • Potential savings on bus journey times with better signal operation for the junction. • Better lighting should ensure safer environment than the subways • Removal of subway would reduce maintenance cost	• Most expensive of the options • Land take would be required for the northwest section • Pedestrian crossings not direct and will take longer than using the subway • Potential non-compliance to signals by cyclists and pedestrians • Funding may not be available • Removal of flyover will provide challange • Works to implement scheme will be challenging

Appendix C –Daily Traffic Flow

	DESTINATION				
	A	B	C	D	E
AM PEAK	0	36	4	277	264
PM PEAK	0	11	3	222	98

	DESTINATION				
	A	B	C	D	E
AM PEAK	114	2969	14	111	18
PM PEAK	57	1911	20	167	45



	DESTINATION				
	A	B	C	D	E
AM PEAK	61	33	4	433	2746
PM PEAK	54	30	7	516	2608

AM PEAK	1088
PM PEAM	900

	DESTINATION				
	A	B	C	D	E
AM PEAK	47	146	10	4	34
PM PEAK	63	85	4	3	56

	DESTINATION				
	A	B	C	D	E
AM PEAK	1	2	0	2	1
PM PEAK	1	0	0	0	4

rev	date	details	drn	chk	app

Transport for London
TfL Engineering

Traffic Design Engineering

Palestra
197 Blackfriars Road
London SE1 8NJ

borough
LB of Hounslow

scheme
Hogarth Lane J/W Burlington Lane
Traffic Counts 2017

DRAFT

date	scale	drn	chk	app	sheet no
NOV 2018	NTS				0001 OF 0001

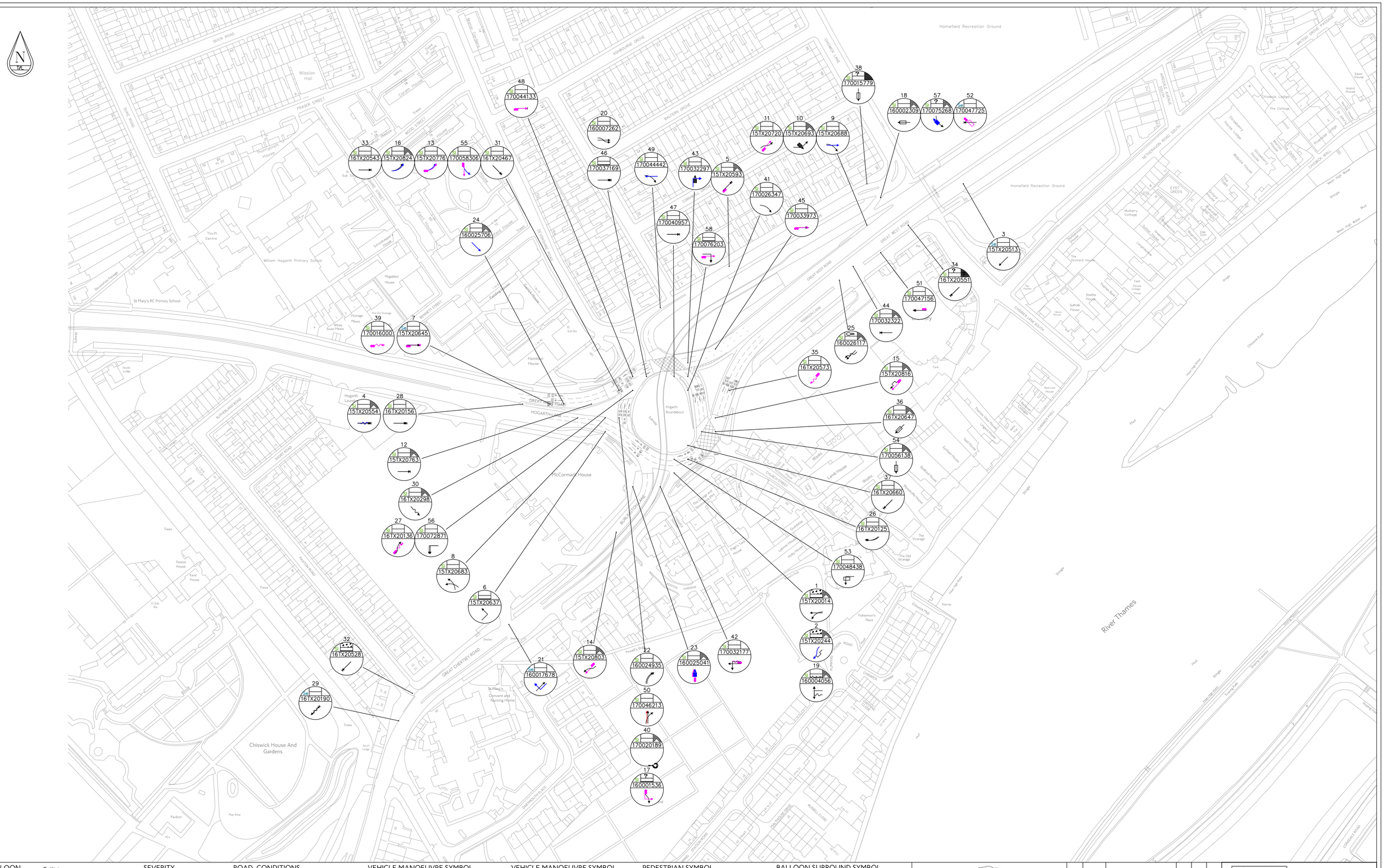
suitability		revision
S0	NON-VERIFIED DESIGN	P00.1

drawing No
HR-TRAFFIC-COUNTS-2017-0001

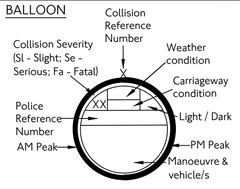
project | owner | asset | location | type | role | option | number

© Crown copyright and database rights 2018 Ordnance Survey 100035971

Appendix D – Collision Diagram and Stats



BALLOON



SEVERITY

Sl	SLIGHT INJURY
Se	SERIOUS INJURY
Fa	FATAL INJURY

WEATHER CONDITIONS

- FOG
- RAIN
- SNOW
- HIGH WIND / RAIN

ROAD CONDITIONS

- ROAD DEFECT
- WET/DAMP
- SNOW
- ICE/FROST

LIGHT CONDITIONS

- DARK WITH STREET LIGHTS
- DARK WITHOUT STREET LIGHTS
- DAYLIGHT

VEHICLE MANOEUVRE SYMBOL

- VEHICLE LOSS OF CONTROL
- STATIONARY VEHICLE
- PARKED VEHICLE
- VEHICLE OVERTAKE
- VEHICLE TURNING MANOEUVRE
- SUDDEN BRAKING / STOPPING
- REAR SHUNT
- REAR SHUNT
- SINGLE VEHICLE
- LANE CHANGE / SIDESWIPE

VEHICLE MANOEUVRE SYMBOL

- "U" TURN
- VEHICLE STRIKING PEDESTRIAN
- VEHICLE REVERSING (IN DIRECTION OF ARROW)
- PEDAL CYCLE
- P2W
- GOODS VEHICLE
- PUBLIC SERVICE VEHICLE

PEDESTRIAN SYMBOL

- PED MOVEMENT FROM NEARSIDE
- PED MOVEMENT FROM OFFSIDE
- PED MOVEMENT FACING TRAFFIC
- PED MOVEMENT BACK TO TRAFFIC
- ? PED UNKNOWN MOVEMENT

CLUSTER

- COLLISION CLUSTER SITE

BALLOON SURROUND SYMBOL

- * NOT CONSIDERED IN ANALYSIS (NOT IN STUDY AREA)
- OCCURRED DURING THE AM PEAK HOURS 06:00 - 08:59
- OCCURRED DURING THE PM PEAK HOURS 16:00 - 19:59

rev	date	details	drn	chk	app

Transport for London — Surface Transport

Road Space Management
Outcomes Design Engineering

Palestra
197 Blackfriars Road
London
SE1 8NJ

rev	date	details	drn	chk	app

borough: LB HOUNSLOW

scheme: ACCELERATED SCHEMES LIST
COLLISION INVESTIGATION PLOT
HOGARTH LANE / BURLINGTON LANE
01/01/2015 - 31/12/2017

date	scale	drn	chk	app	sheet no
OCT.18	1:1250. @ A1	XX	XX	XX	001 OF 002

suitability	revision
S0 | NON-VERIFIED DESIGN	P00.1

drawing No: HR-RSM-COL-25-DR-TE-02-001

project | county | status | discipline | type | note | originator | number

DRAFT

© Crown copyright and database rights 2018 Ordnance Survey 100035971

FILE REF: S:\TDE\Scheme Information\All Areas\Safer Junctions\SC.3590.002.001.12 Hogarth Lane Burlington Lane\06 Drawings\01 WIP\DR\HR-RSM-COL-25-DR-TE-02.dwg | USER: Cranham Ian | DATE: 2018 Dec 21 2:31

No.	Reference Number	Day	Month	Year	Time	Severity	Vehicle Left C'way	Contributory Factors 1/2	Contributory Factors 3/4	Contributory Factors 5/6
1	15TX 20014	We07	Jan	2015	1845	Sl	N	V2** 403; V2** 602		
2	15TX 20244	Sa03	Jan	2015	0725	Sl	N	V1** 403; V1* 406	V2* 405	
3	15TX 20513	Fr12	Jun	2015	1200	Se	O	V1** 405; V1** 410	V1** 307	
4	15TX 20554	Th30	Jul	2015	2215	Sl		V1** 308; V1** 405	V1** 503; V1** 607	
5	15TX 20593	Th06	Aug	2015	2033	Sl	N	V1* 403; V1* 409		
6	15TX 20637	Su12	Jul	2015	2035	Sl		V1** 410		
7	15TX 20645	Fr11	Sep	2015	0945	Se	N	V2* 403		
8	15TX 20683	Sa26	Sep	2015	1336	Sl		V2** 403		
9	15TX 20688	We02	Sep	2015	1100	Sl		V2** 302; V2** 403	V1** 406; V2** 406	
10	15TX 20693	Sa03	Oct	2015	2315	Sl		V1* 403; V1** 406		
11	15TX 20720	Tu29	Sep	2015	1147	Sl		V1** 403; V1* 406	V2* 406	
12	15TX 20763	Th15	Oct	2015	0230	Sl		V1* 308; V1** 403	V1* 406	
13	15TX 20776	Mo19	Oct	2015	1350	Sl		V2** 403; V2* 409	V2* 410	
14	15TX 20803	Tu20	Oct	2015	1940	Sl		V2* 406		
15	15TX 20816	Sa31	Oct	2015	0130	Sl		V2* 403; V2* 406		
16	15TX 20824	Fr23	Oct	2015	1730	Sl		V2** 403	V2** 406	
17	1600 01536	Mo14	Nov	2016	1300	Sl		V2* 403; V2* 406		
18	1600 02309	Th17	Nov	2016	2036	Sl		V2** 403; V2* 602	V2** 406	
19	1600 04056	Tu29	Nov	2016	2100	Sl		V2* 410; V1* 409		
20	1600 07262	Fr16	Dec	2016	1030	Sl		V2* 406		
21	1600 17678	Mo05	Sep	2016	0820	Se		V1** 405; V1** 403		
22	1600 24935	We12	Oct	2016	0700	Sl		V1* 406		
23	1600 25041	Tu18	Oct	2016	0658	Sl		V1* 405; V2* 701		
24	1600 25706	Tu25	Oct	2016	0052	Sl		V2** 406; V1* 406	V1* 404; V2* 602	V2* 404; V2** 405
25	1600 26117	Th20	Oct	2016	1944	Sl				
26	16TX 20125	Th18	Feb	2016	1640	Sl	O	V1** 602; V1** 510	V1** 409; V1** 509	
27	16TX 20136	Th11	Feb	2016	0714	Sl		V1** 410; V1* 602	V2** 408; V1* 405	
28	16TX 20156	Su06	Mar	2016	1209	Sl		V2* 406; V2** 403		
29	16TX 20190	Sa12	Mar	2016	1333	Se	O	V1* 308; V1* 408		
30	16TX 20298	Fr12	Feb	2016	0313	Sl	O	V1* 410; V1* 307		
31	16TX 20467	Sa18	Jun	2016	0955	Sl		V1* 306; V1** 406	V1** 405; V2* 408	
32	16TX 20528	Mo11	Jul	2016	1607	Sl		V1** 406; V1** 308	V1** 405	
33	16TX 20543	Sa16	Jul	2016	1740	Sl		V1* 405; V2* 408		
34	16TX 20551	Sa16	Jul	2016	2345	Sl		V2** 308; V2** 405	V2** 406	
35	16TX 20573	Mo18	Jul	2016	1906	Sl		V1** 405; V1** 408	V1** 410; V1* 306	
36	16TX 20647	Mo29	Aug	2016	0539	Sl		V2** 405; V2* 509	V2** 403	
37	16TX 20660	Mo22	Aug	2016	0824	Sl		V2** 308		
38	1700 15779	Th26	Jan	2017	1340	Sl				
39	1700 16000	Fr03	Feb	2017	1148	Sl		V1** 102		
40	1700 20189	Tu07	Feb	2017	1920	Sl				
41	1700 26347	Sa18	Mar	2017	1600	Sl		V1* 409		
42	1700 32177	Fr14	Apr	2017	1400	Sl		V3* 403		
43	1700 32297	Su16	Apr	2017	1206	Sl		V2** 403		
44	1700 32322	Su16	Apr	2017	2200	Sl		C1** 999; V1** 408		
45	1700 33973	We26	Apr	2017	0828	Sl		V3** 403; V1* 403		
46	1700 37169	Sa13	May	2017	0813	Sl		V2** 406; V1** 408		
47	1700 40957	Fr02	Jun	2017	1405	Sl		V2** 406		
48	1700 44133	We21	Jun	2017	1230	Sl		V2** 408; V1* 408	V2* 406	
49	1700 44442	Th22	Jun	2017	1312	Sl		V1** 501; V1** 410		
50	1700 46213	Sa01	Jul	2017	0935	Sl	N	V3* 602		
51	1700 47156	Fr07	Jul	2017	0633	Sl		V1** 405		
52	1700 47725	Tu11	Jul	2017	0756	Se		V1* 405		
53	1700 48438	Fr14	Jul	2017	1827	Sl		V1** 406		
54	1700 56138	Su27	Aug	2017	0315	Sl		V2** 307; V2** 601		
55	1700 58306	Mo11	Sep	2017	1300	Sl		V1** 405; V1** 409	V1** 602	
56	1700 72871	Su26	Nov	2017	0808	Sl		V2** 405		
57	1700 75268	Mo04	Dec	2017	1720	Sl	NS	V2** 402; V2** 302	V1** 405	
58	1700 76203	Th07	Dec	2017	0734	Sl		V2** 405		

Row headings: Reference Number; Date / Day, Month, Year, Time; Severity; Dark / Lit; Weather Conditions; Road Surface; Special Conditions; Carriageway Hazards; Vehicle Manoeuvres; Vehicle 1 5 e; Vehicle 2 6 t; Vehicle 3 7 c; Vehicle 4 8; Casualty /age; Failed to Give–Way; Signal Ignored; Loss of Control; Hit Object IN C'way; Hit Object OFF C'way; Vehicle Left C'way; Breath Test; Contributory Factors 1/2, 3/4, 5/6; * possible, ** very likely; School No./Ref.; User fields: 1, 2, 3, 4

Causation Factor List

Road environment contributions
- 101 Poor or defective road surface
- 102 Deposit on road e.g. oil, mud, chippings
- 103 Slippery road due to weather
- 104 Inadequate/Masked signs or road markings
- 105 Defective traffic signals
- 106 Traffic Calming
- 107 Temporary road
- 108 Road layout e.g. bend, hill or narrow
- 109 Animal or object in carriageway

Vehicle defects
- 201 Tyres illegal, defective or under inflated
- 202 Defective lights or indicators
- 203 Defective brakes
- 204 Defective steering or suspension
- 205 Defective or missing mirrors
- 206 Overloaded or poorly loaded vehicle/trailer

Injudicious action
- 301 Disobeyed automatic traffic signal
- 302 Disobeyed give way or stop sign markings
- 303 Disobeyed double white line
- 304 Disobeyed pedestrian crossing
- 305 Illegal turn or direction of travel
- 306 Exceeding speed limit
- 307 Travelling too fast for conditions
- 308 Following too close
- 309 Vehicle travelling along pavement
- 310 Cyclist entering road from pavement

Driver/rider details/error or reaction
- 401 Junction overshoot
- 402 Junction restart
- 403 Poor turn or manoeuvre
- 404 Failed to signal/misleading signal
- 405 Failed to look properly
- 406 Failed to judge other person's path/speed
- 407 Passing too close to cyclist/pedestrian
- 408 Sudden braking
- 409 Swerved
- 410 Loss of control

Impairment or distraction
- 501 Impaired by alchol
- 502 Impaired by drugs
- 503 Fatigue
- 504 Uncorrected, defective eyesight
- 505 Illness or disability, mental or physical
- 506 Not displaying lights at night or poor visibility
- 507 Cyclist wearing dark clothing at night
- 508 Driver using mobile phone
- 509 Distraction in vehicle
- 510 Distraction outside vehicle

Behaviour or experience
- 601 Aggressive driving
- 602 Careless/Reckless
- 603 Nervous/Uncertain
- 604 Driving too slow for conditions
- 605 Inexperienced or learner driver/rider
- 606 Inexperience of driving on the left
- 607 Inexperience with vehicle type

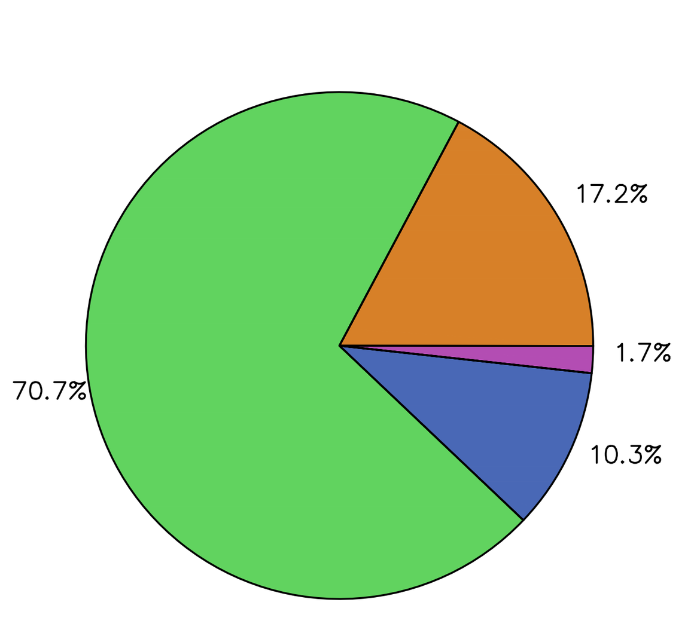
Vision affected by
- 701 Stationary or parked vehicle(s)
- 702 Vegetation
- 703 Road layout
- 704 Buildings, road signs, street furniture
- 705 Dazzling headlights
- 706 Dazzling sun
- 707 Rain, sleet, snow or fog
- 708 Spray from other vehicles
- 709 Visor or windscreen dirty or scratched
- 710 Vehicle blind spot

Pedestrian Details
- 801 Crossed road masked by stationary or parked vehicle
- 802 Failed to look properly
- 803 Failed to judge vehicle's path/speed
- 804 Wrong use of pedestrian crossing
- 805 Dangerous action in carriageway
- 806 Impaired by alchol
- 807 Impaired by drugs
- 808 Careless/Reckless
- 809 Pedestrian wearing dark clothing at night
- 810 Disability or illness

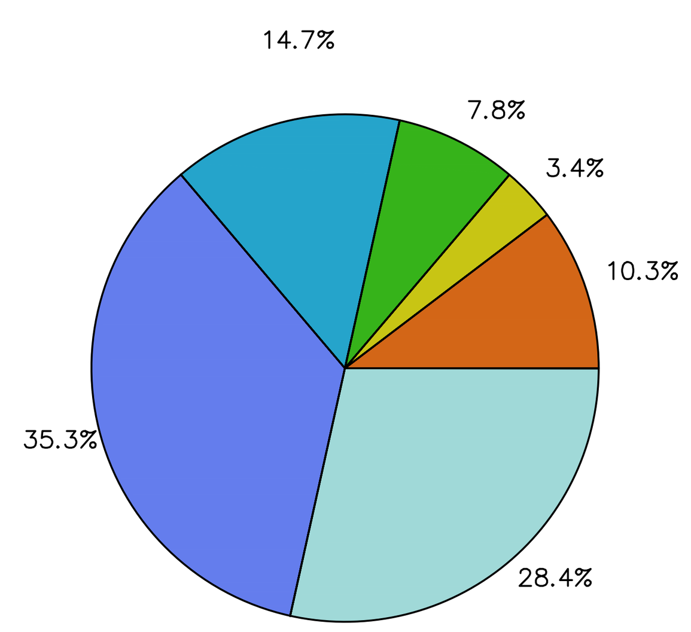
Special Codes
- 901 Stolen vehicle
- 902 Vehicle in course of crime
- 903 Emergency vehicle on call
- 904 Vehicle door opened/closed negligently
- 999 Other
- L12 User code

* Speed related contributory factors

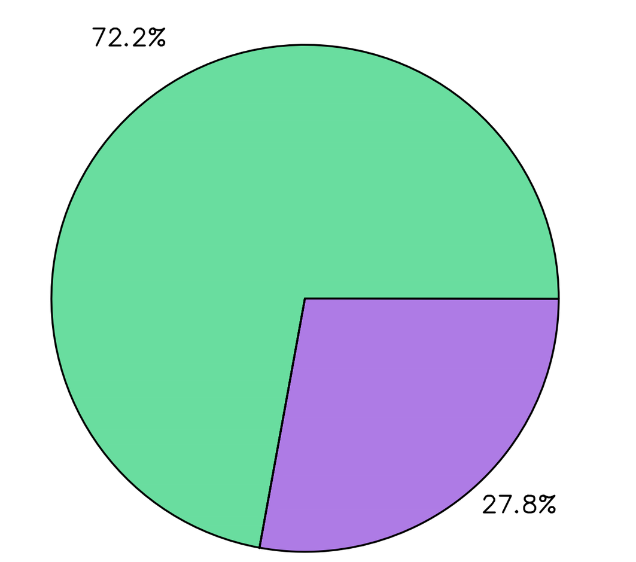
Collision not included in analysis



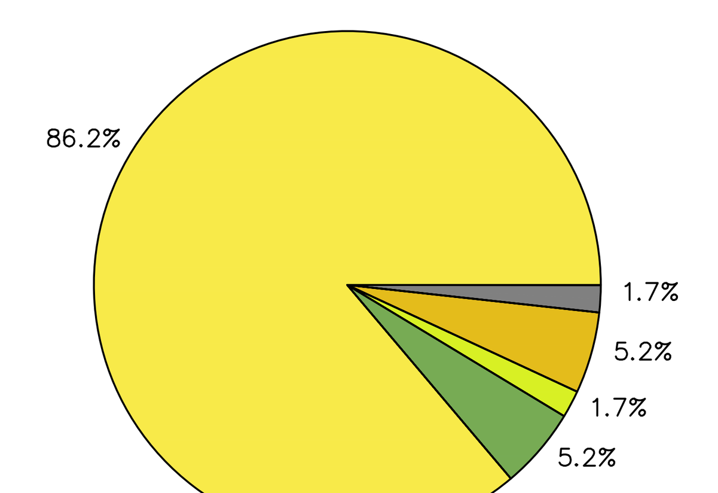
VEHICLES
- 0 Pedal Cycles
- 20 Powered 2 wheelers
- 82 Cars etc.
- 12 Goods Vehicles
- 2 PSVs
- 0 Others/Unknown



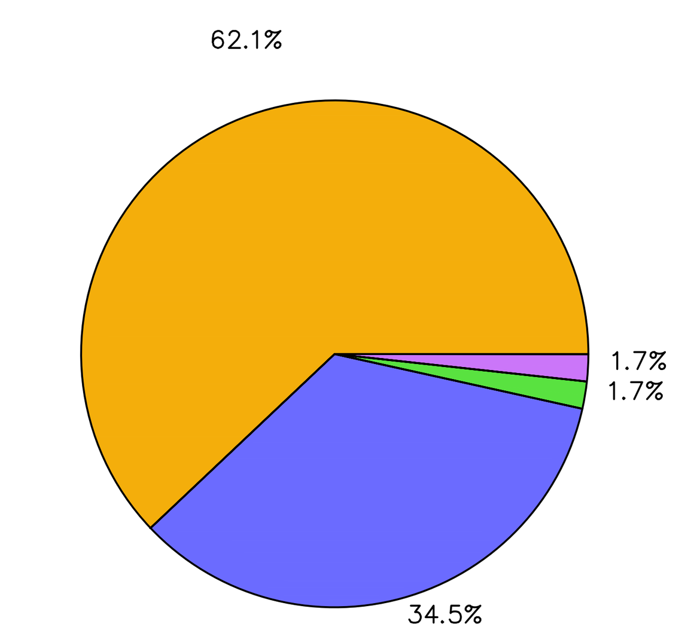
MANOEUVRES
- 12 Parked/Wait/Start
- 4 Waiting to/Turning right
- 9 Change lane/Overtake
- 17 Going ahead bend L/R/U
- 41 Going ahead
- 33 Others/Unknown



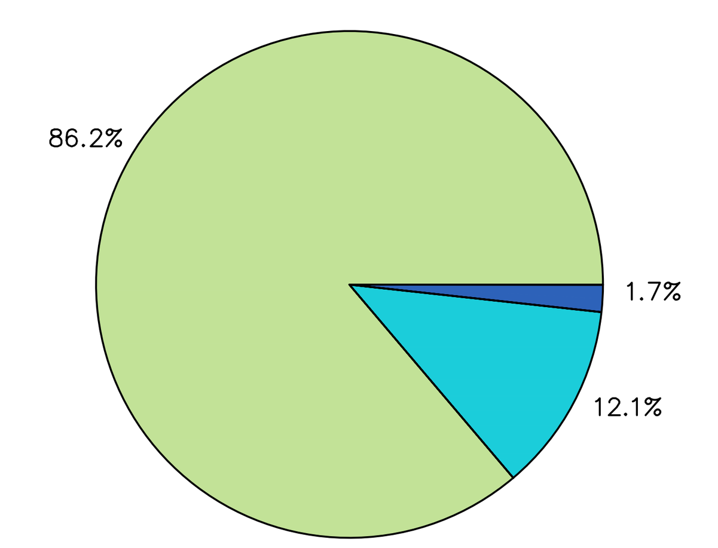
CASUALTIES
- 0 P/Cycle Rider
- 57 Motor Vehicle Driver
- 22 Passenger
- 0 Pedestrian 15 and under
- 0 Pedestrian 16–64
- 0 Pedestrian 65 and over
- 0 Pedestrian unknown age



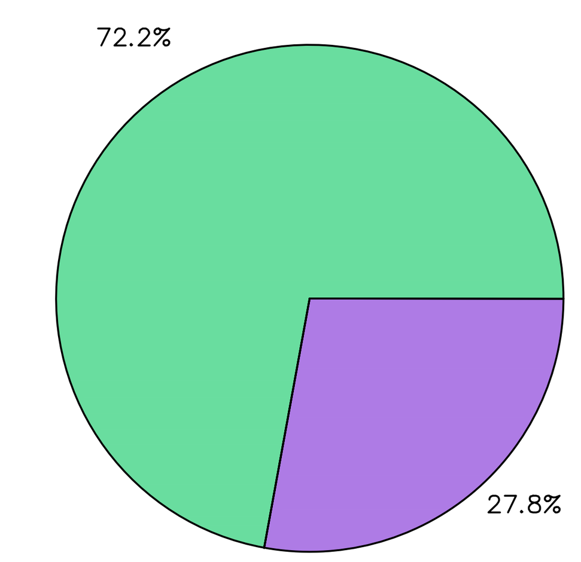
WEATHER
- 50 Fine without high winds
- 3 Raining without high winds
- 0 Snowing without high winds
- 0 Fine with high winds
- 0 Raining with high winds
- 0 Snowing with high winds
- 0 Fog or mist (if hazard)
- 3 Other
- 1 Unknown



LIGHTING
- 36 Daylight
- 20 Darkness: street lights lit
- 0 Darkness: street lights unlit
- 1 Darkness: no street lighting
- 1 Darkness: street lighting unknown
- 0 Unknown



ROAD SURFACE
- 50 Dry
- 7 Wet / Damp
- 0 Snow
- 1 Frost / Ice
- 0 Flood (> 3cm deep)
- 0 Unknown



CASUALTIES
- 0 P/Cycle Rider
- 57 Motor Vehicle Driver
- 22 Passenger
- 0 Pedestrian 4 and under
- 0 Pedestrian 5–15
- 0 Pedestrian 16–59
- 0 Pedestrian 60–64
- 0 Pedestrian 65 and over
- 0 Pedestrian unknown age

rev | date | details | drn | chk | app

Transport for London
Surface Transport
Road Space Management
Outcomes Design Engineering
Palestra
197 Blackfriars Road
London
SE1 8NJ

borough: LB HOUNSLOW

scheme: ACCELERATED SCHEMES LIST 2016/17
COLLISION STICK DIAGRAMS
HOGARTH LANE / BURLINGTON LANE
01/11/2013 - 31/10/2016

DRAFT

date	scale	drn	chk	app	sheet no
OCT.18	N.T.S. @ A1	PF	XX	XX	002 OF 002

suitability: S0 NON-VERIFIED DESIGN
revision: P00.1
drawing No: HR-RSM-COL-25-DR-TE-02-002

© Crown copyright and database rights 2018 Ordnance Survey 100035971

FILE REF: S:\TDE\Scheme Information\All Areas\Safer Junctions\SC.3590.002.001.12 Hogarth Lane Burlington Lane\06 Drawings\01 WIP\DR\HR-RSM-COL-25-DR-TE-02.dwg | USER: Cranham Ian | DATE: 2018 Dec 21 2:31