

LAND WEST OF THE B2145, CHICHESTER ROAD, SELSEY

INITIAL TRANSPORT ASSESSMENT

LANDLINK ESTATES LTD

17 MARCH 2022



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1.0 Introduction

Context

- 1.1. This Initial Transport Assessment has been prepared on behalf Landlink Estates Ltd to support an Allocation in the Chichester District Local Plan Review for a development of up to 275 dwellings on Land West of B2145, Chichester Rd, Selsey. **Figure 1** below shows the site location. The proposed Land Use Strategy for the site is shown on the plan included in **Appendix A**.
- 1.2. This site is bounded on its northern and eastern sides by the B2145, on its western side by open farmland and on its southern boundary by the town of Selsey.
- 1.3. The site has a residential development area of c.11 hectares and is currently made up of two open fields known as Palmers field to the north separated from Wakelies field to the south. There is a drainage ditch along the western boundary of the site within the boundary vegetation that make up the boundary.

Figure 1 – Site Location



Development Proposal

- 1.4. The suggested allocation capacity is for up to 275 dwellings.
- 1.5. Primary access to the site will be formed from the B2145/Manor Rd roundabout with the possibility of a secondary access being located on the B2145 at the northern edge of the site. The primary access on the B2134/Manor Rd roundabout will be located in the same position as the current field access.



- 1.6. Potential for a third access onto B2145, along the sites eastern boundary is also being considered – either as a full vehicular access or perhaps as an emergency vehicle and pedestrian/cycle access.
- 1.7. Due to the location of Selsey on the Manhood Peninsula the B2145 forms the only road in or out of Selsey and therefore assessment has focussed upon this corridor. However, Selsey enjoys a degree of self-containment and contains a number of local facilities including both Primary and Secondary Schools, ASDA supermarket (opposite the site), as well as other health, leisure and retail facilities. It therefore provides opportunities for travel in short distances (and therefore sustainably) for a number of journey purposes.

WSCC Highways Scoping

- 1.8. Highways scoping discussions have been held with West Sussex County Council (WSCC).
- 1.9. The main points raised by highways Officers at WSCC were as follows:
 - Agreement that day to day services are within a 1.6km (1 mile) walking distance and well within cycling distance of the site.
 - Benefit in providing routes and improvements to northbound bus stops in particular.
 - WSCC preference is for primary access to make use of either an improved access onto the B2145 Manor Road Roundabout or alternately a new access sited onto the B2145 on the sites eastern frontage.
 - The trip rates used represent a ‘worst case’ (and are therefore robust).
 - If the proposed development is considered to reflect any potential LP allocation, then it is agreed that there would be no benefit to including TEMPRO growth. This is however reliant on what may be proposed to be allocated in Selsey.
 - Notwithstanding, the initial assessments of the B2145 Manor Road Roundabout shows that all arms would operate within capacity with minimal queues or delays in a future year with the proposed development.
- 1.10. The comments raised have been taken account of when formulating the access strategy and producing this initial Transport Assessment Report.
- 1.11. The original allocation for Selsey, in the Local Plan Preferred Approach, of the site to the east of the B2145 was considered as unsuitable in the HEELA 2021 and the site was relocated to the West of Park Farm.

Form of Assessment

- 1.12. This high-level Transport Assessment has been prepared to assess and quantify the impact of the development proposals in highways and transport terms. In particular the impact of vehicle movements from the site on the local highway network have been assessed.



1.13. The Report has been prepared with respect to the National Planning Policy Framework (NPPF). Therefore, the assessment provides evidence that:

- Appropriate opportunities to promote sustainable transport modes can be – or have been – taken up, given the type of development and its location;
- Safe and sustainable access to the site can be achieved for all users; and
- Significant impacts from the development on the transport network (In terms of capacity and congestion), or on highway safety, can be cost effectively mitigated to an acceptable degree.

Report Structure

1.14. This report is structured so as to ensure a clear, comprehensive and robust assessment of the proposed developments impact upon the local highway network. As such the report provides the following information and discusses the proposals in the following sections:

- **Section 2** – Assesses the development in the context of national and local planning policy, demonstrating that the proposals are policy compliant.
- **Section 3** – Provides a detailed review of the existing site conditions, giving particular attention to existing sustainable travel opportunities and where appropriate identifying potential improvement opportunities.
- **Section 4** – Sets out the development proposals, including detailed information regarding access to the development.
- **Section 5** – Discusses trip rates for the development and shows how traffic generated by the development would be distributed onto the local highway network.
- **Section 6** – Provides a summary of the junction capacity assessment results at locations identified on the local highway network.
- **Section 7** – Sets out a summary of the report’s findings and concludes the report based upon the evidence provided.



2.0 Planning Policy

Planning Policy Context

- 2.1. The proposed development site is located within the administrative boundary of Chichester District Council (CDC) for which West Sussex County Council (WSSCC) act as the Local Highway Authority (LHA). The proposed site area also falls within the town of Selsey.
- 2.2. This section reviews the development proposal within the context of national and local planning policies.

National Planning Policy Framework (July 2021)

- 2.3. The Department for Communities and Local Government published the 'National Planning Policy Framework' (NPPF) document in March 2012 which was subsequently updated in July 2021. The NPPF sets out the Government's policies for England and how these should be applied. It provides a framework within which locally-prepared plans for housing and other development can be produced.
- 2.4. The purpose of the planning system is to contribute to the achievement of sustainable development. So that sustainable development is pursued in a positive way, at the heart of the Framework is a presumption in favour of sustainable development.
- 2.5. The NPPF states that transport issues should be considered from the earliest stages of plan-making and development proposals. Significant development should be focussed on locations which are or can be made sustainable, through limiting the need to travel and offering a genuine choice of transport modes.
- 2.6. In respect of promoting sustainable travel the NPPF advocates that planning policies and decisions should consider whether:
 - *“Appropriate opportunities to promote sustainable transport modes can be – or have been - taken up, given the type of development and its location;*
 - *Safe and suitable access to the site can be achieved for all users; and*
 - *Significant impacts from the development on the transport network (in terms of capacity and congestion), or on highway safety, can be cost effectively mitigated to an acceptable degree.”*
- 2.7. The guidance advises that, subject to the above considerations, development should not be prevented or refused on transport grounds unless the residual impacts of the development are severe.



West Sussex Transport Plan 3 2011 - 2026

2.8. WSC's Local Transport Plan 3 (LTP3) was adopted in 2011. It is a long term, 15-year strategy for how the transport network in West Sussex will be developed, improved and maintained into the future, and a short term three year implementation plan, which is regularly updated to account for emerging development needs, issues and identifies sources of funding. The 4 primary strategies of the transport plan are:

1. Promoting economic growth
2. Tackling Climate Change
3. Providing access to services, employment and housing
4. Improving safety security and health

West Sussex County Council Guidance on Parking at New Developments (September 2020)

- 2.9. West Sussex County Council Guidance on Parking at New Developments (September 2020) provides guidance on the required standard of parking places and the number of required parking spaces in new developments.
- 2.10. Table 2.1 below identifies the parking standards required for differing size dwellings based on the number of bedrooms within the dwelling in the area of the site. The site is within the Selsey north area and as such is in parking behavior zone 1.

Table 2.1 - Car Parking provision within parking zone 1 of West Sussex

Number of bedrooms per dwelling	Number of Habitable Rooms	Parking Behaviour Zone 1
1	1 to 3	1.5
2	4	1.7
3	5 to 6	2.2
4+	7 or more	2.7

Summary

- 2.11. The overarching principle of national and local transport policy is for new development to be located where it is accessible by a range of transport modes including walking, cycling and public transport. Safe access and appropriate parking should be provided. Fundamentally, development should only be prevented from coming forward for transport reasons if the residual impact would be severe.
- 2.12. This site has been identified within the Local Plan Review as one suitable for residential development. Inherent within that decision is the assumption that it is one that offers suitable opportunities for sustainable travel and therefore subscribes to the requirements of the NPPF.



3.0 Existing Conditions

Site Context

- 3.1. The site is bordered on its northern and eastern sides by the B2145. On the south the site is bordered by the settlement of Selsey and on the western boundary is agricultural land and a drainage ditch.
- 3.2. This section of the Transport Assessment report examines the existing transport provisions near the site with all modes of transport considered.

Local Highway Network

- 3.3. The development site is well located to take advantage of the existing highway network, being in close proximity to the strategic roads as well as local links; a direct connection from the site onto the B2145 will result in trips to the north not needing to route through the town centre.
- 3.4. The B2145 is the main local distributor link, offering connections into the town of Selsey to the south and towards the A27 and Chichester to the north. In the vicinity of the site the B2145 has a carriageway width of 6.5-7m and is subject to a 30mph speed limit along the south eastern portion of the site which increases to 40mph approximately 80m north of the B2145/Manor Rd roundabout. There is currently a narrow footway along the western boundary of the B2145, adjacent to the site which carries on towards the settlement of Upper Norton.
- 3.5. To the north of the site the B2145 connects to the A27 c.9 Km to the north which is a strategic highway offering connections to Portsmouth and the M27 in the west and destinations such as Worthing and Brighton in the east.
- 3.6. Along the south eastern boundary of the site is a roundabout connecting two segments of the B2145, Manor Rd and the ASDA supermarket site. The primary access to the site will be located on this junction making up a 5th junction which currently exists as a field access.
- 3.7. The southern section of the B2145 south of the roundabout and Manor Rd make up the two primary thoroughfares of Selsey with side roads branching off from and connecting them. Because of this, all traffic entering Selsey would utilise either the southern portion of the B2145 or Manor Rd.

Highway Safety

- 3.8. In order to establish if there are any particular road safety issues in the local network, the most recent 5 year of personal injury access information for the highways in the vicinity of the site have been obtained from Sussex police who maintain crash information for the Selsey area. The data covers the period for the 1/11/2016 – 31/10/2021 and encompasses the following study area as agreed during the scoping exercise:
 - The B2145 from the North of the site through into the town of Selsey
 - Manor Rd from the roundabout unto the town of Selsey
 - Church Road

- 3.9. Due to the regulations governing the distribution of sensitive information, the official collision report and data has not been included in this document, Table 3.1 summarises the RTC record.

Table 3.1: Number of accidents by severity and vehicle type

Location	Severity				Road Users			
	Slight	Serious	Fatal	Total	Vehicle Only	Cycle	Peds	Total
B2145 junction at Rectory Ln	1	0	0	1	0	1	0	1
Manor Rd	7	2	0	9	8	1	0	9
Manor Rd at the junction of Beach Street	2	0	0	2	1	1	0	2
B2145 Norton Corner	5	1	0	6	6	0	0	6
Manor Rd junction with Church St	2	0	0	2	2	0	0	2
B2145	5	3	0	8	7	0	1	8
B2145 junction with Manor Rd	0	1	0	1	0	1	0	1
Church Rd	1	0	0	1	1	0	0	1
Total	23	7	0	30	25	4	1	30

- 3.10. A total of 30 accidents have occurred within the study area in the last 5 years. Of these accidents only 4 have featured cyclists and one a motorcyclist. The others have featured personal motor vehicles only. No accidents have featured injuries to pedestrians within the last 5 years.
- 3.11. Of particular note is the fact that that only one accident has occurred at the roundabout junction of the B2145 and Manor Rd. This is of importance because this roundabout is the proposed location of the primary entrance to the site.
- 3.12. A summary of the accidents that have occurred along particular links and junctions are as follows.

Manor Rd

- 3.13. In total 13 accidents have occurred along the length of Manor Rd in the 5-year period. 11 of these accidents involved injuries to car drivers while 2 involved the injury of a cyclist. In total 2 of the accidents led to serious injuries while there were no fatalities.
- 3.14. One accident involving serious injury was caused by a disagreement between a car driver and a goods vehicle over the right of way and led to the car driver accelerating their car into a row of houses. The report concludes that it is very likely that this accident was caused by a loss of control and driver panic.
- 3.15. Another accident that led to serious injury occurred on Manor Rd near to the junction with Denshare Rd. This accident involved a car leaving the carriageway and colliding with 2 stationary cars. The report suggests it is very likely that this accident was caused by carelessness with the possibility of illness and disability also playing a factor.



- 3.16. Two collisions occurred at each of the junctions of Manor Rd with Church Street and Beach Street. The collisions at Church Street both featured private vehicles with the collision at Beach Street also featured 1 minor collision with a cyclist. The contributing factors for these crashes varied but they involved failing to look properly or being impaired by alcohol.

B2145

- 3.17. A total of 16 accident have occurred on the B2145. These have occurred in a variety of settings and conditions due to the length of the B2145 within the study area. Of these accidents 5 featured severe injuries while none proved fatal. A total of 2 accidents on the B2145 involved Cyclist's while the rest featured either private cars or motorbikes. In the following sections the accidents will be broken down by the location that they have occurred.
- 3.18. A total of 8 accidents occurred on the B2145 away from junctions and involved 5 slight and 3 serious injuries. 7 of these featured private vehicles while 1 featured a cyclist. Several of these accidents have occurred at Norton Corner during poor weather conditions.
- 3.19. A serious accident that occurred on the B2145 was 150m south of Rectory Ln and involved serious injuries to a car driver. This accident was caused by Car 1 overtaking a cyclist and while they were overtaking, they suffered a head on collision with Car 2. This led to serious injuries for a passenger in Car 2. The report indicated that it was a possibility that Car 1s driver had been impaired by alcohol.
- 3.20. A total of 6 accident also occurred on the B2145 in the vicinity of Norton Corner these involved 5 slight and 1 serious injury, and all collisions involved cars.
- 3.21. One serious accident occurred on the B2145 188m west of Rectory Ln near Norton Corner. Car 1 lost control due to the poor weather conditions and crossed into oncoming traffic striking an oncoming car in a head on collision. This collision led to serious injuries in the driver of Car 1, while also seriously injuring the driver and passenger in Car 2. The report indicated that it was very likely that Car 1 was traveling too fast for the conditions and lost control because of nervousness/uncertainty/panic.
- 3.22. Slight injuries also occurred at other junctions of the B2145. These were the junctions with Rectory Ln, Park Ln and Manor Rd. these led to slight injuries with the exception of the crash at Manor Rd which led to serious injuries. The accident at Canor Rd featured a collision between a cyclist and a car. This occurred as a car struck the cyclist on the B2145/Manor Rd roundabout and knocked the cyclist from their vehicle. The report indicated that it was possible that the driver of the car was dazzled by the sun.

Church Road

- 3.23. One collision occurred on Church Road which involved a car and led to slight injuries. This accident involved Car 1 which was being driven eastward along Church Road losing control and colliding with Car 2 which was parked. Car 1 then flipped and came to a rest on its roof. The report indicated that it was very likely that this accident was caused by a mixture of slippery conditions and the fact that the driver was under the influence of alcohol.



Summary

- 3.24. Whilst all accidents are regrettable, the analysis shows that there has only been one accident near the proposed roundabout access junction on the B2145/ Manor Rd roundabout and indeed there have been relatively few accidents on the highway network surrounding the site.
- 3.25. It appears that there has been a total of 6 accidents in the vicinity of Norton Corner during periods of wet weather. The location currently features on road writing which instructs motorists to slow down alongside chevron signs indicating that it is a sharp bend. Most of the individual accidents at Norton Corner featured contributing factors such as poor weather conditions, drink driving, loss of control and inappropriately driving.
- 3.26. Also of note is that the development will improve the cycling/pedestrian facilities connections with the pedestrian/cycling network of Selsey. This would help improve the safety of cyclists and pedestrians in the vicinity of the site. There would be an introduction of a crossing on the northern B2145 exit of the B2145/Manor Rd roundabout. As this was a location of one of the Serious Accidents which involved the collision of a cyclist and a car on the roundabout.

Site Accessibility

- 3.27. It has been long established that it is generally acceptable for developments that are within 2km walk and 5km cycle distance of local facilities and amenities to be considered accessible, as recommended by the Chartered Institution of Highways and Transportation (CHIT) – Providing for Journeys on Foot.
- 3.28. While not arbitrary and being subject to the existing walking and cycling infrastructure available, these distances provide a suitable guide when assessing the accessibility of the site. As such existing facilities and amenities within acceptable walking (2km) and cycling (5km) of the site have been identified and are summarised in Table 3.2.

Table 3.2 - Summary of Local Facilities

Facility	Distance*	Walk / Cycle Time
Bus Stop (B2145 West of Site Boundary)	400m	6/2 mins
ASDA Supermarket and Petrol Station	400m	6/2 mins
The Selsey Centre (Hall / Conference facilities)	650m	10/3 mins
East Beach	1.2km	15/4 mins
Medmerry Primary School	1.2km	17/4 mins
The Academy Selsey (Secondary School)	1.3km	19/6 mins
Selsey Medical Practice	1.5km	17/5 mins
Selsey Cricket / Football Club	1.5km	21/6 mins
Selsey Library	1.5km	17/5 mins
Selsey High Street ▪ Retail / Café / Restaurant / Pubs	800m – 1.6km	17/5 mins
Selsey Beach	2.5km	35/10 mins

*Distances measured from the site, using existing walking / cycling routes

**Journey times taken from googlemaps.com and account for changes in elevation.

3.29. As can be seen that there are large numbers of facilities within both walking and cycling distance of the site. This is exemplified by that fact that the vast majority of the town of Selsey is within 2Km of the site. These facilities that are within easy walking distance include food shops, schools, medical facilities and leisure opportunities

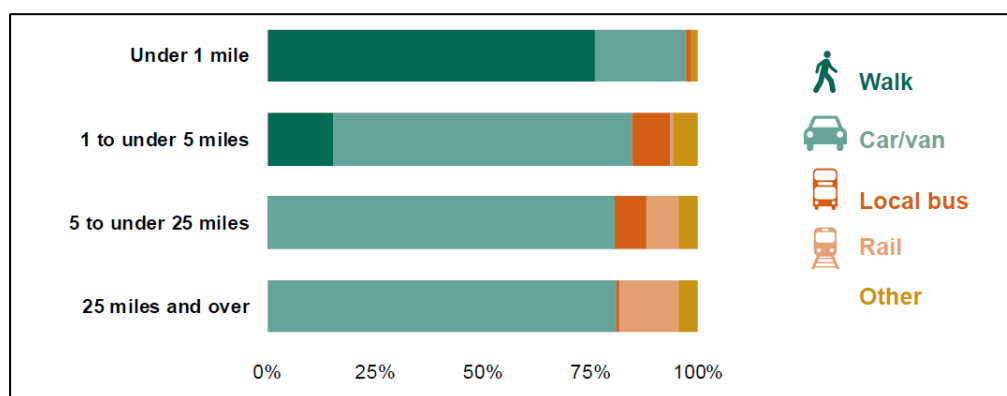
Walking and Cycling

3.30. Walking can play an important role in delivering accessibility on a local scale and contributing to a sustainable development. Walking is considered to be the most important mode of transport on a local level. Walking also offers the greatest potential for the reduction of short car journeys. Cycling also represents an opportunity in reducing car journeys.

3.31. Government guidance on accessibility planning advises that residential developments should be accessible to a range of land uses including education, employment, health and shopping facilities. The close provision of a residential development to such facilities would encourage shorter journeys and as such offers the potential for these journeys to be undertaken by walking and cycling.

3.32. The National Travel Survey identifies the mode share proportions for journey times of different lengths:

Image 3.1 Mode Share of Trips by Main Mode for Different Trip Lengths in England



3.33. As shown in the image above, the vast majority of trips under 1 mile are carried out on foot (76%). The data also shows that 31% of journeys between 1 and 2 miles will be on foot. This shows that a significant proportion of people are willing to walk up to 2 miles (3.2km).

3.34. In relation to existing infrastructure, there is an existing footway along the western side of the B2145 which runs along the eastern and northern sides of the site. This footway offers connections to the wider footway network within the town of Selsey. The footway has a width of approximately 1 – 1.5m varying in places. Along the eastern boundary of the B2145 near the south east corner of the site, there is a short section of 3m Footway which offers a connection between the Supermarket and the Manor Rd area. Pedestrian crossing between the site and the footways on the B2145 and Manor Road corridors is delivered by way of dropped kerb and tactile paving arrangements. Pedestrian refuge islands are provided on each of the roundabout.

3.35. Section 4, sets out works to be delivered to both connect to and potentially enhance such routes.

3.36. There are no public rights of way within the site or immediately adjacent to the site.



Public Transport – Bus

3.37. Two bus stops are located within c.200m walk of the site. These are located on the B2145 and are immediately adjacent to the site. Section 4 sets out how such provision is being enhanced. Table 3.3 below provides details of the local bus services which serve these stops.

Table 3.3 - Summary of Local Bus Services

No.	Operator	Route	Avg. Frequency		
			Weekday	Saturday	Sunday
51	Stagecoach	Selsey-Sidlesham-Hunston-Chichester	20 min	20 min	30 min
614	Stagecoach	Selsey Academy – Brackelsham - Selsey	2 per day	School days	School days
615	Stagecoach	Selsey Academy – Brackelsham - Selsey	1 per day	School days	School days

- 3.38. The majority of bus services that serve the Selsey area are school buses with the exception of the route 51 which offers connections to Chichester.
- 3.39. The service 51 which runs every 20min during the week and on Saturdays or 30 min on Sunday offers a good connection to Chichester. Within the week this service starts running at 05:15 within the town of Selsey at Seal Rd and ends at 00:11 with the final pick up at Seal Road. In the other direction the service starts at 05:50 at Chichester bus station and runs until a final pickup at Chichester Bus Station at 23:25. This represents a very good bus connection with frequent services and would facilitate both commuting and leisure travel at a variety of times.
- 3.40. 57% of individuals in Selsey commute to Chichester combined district for work and as such the route 51 bus could carry a significant percentage of commuters and greatly contribute to increasing public transport usage with the bus stops adjacent to the site.
- 3.41. There is a good provision of school buses in the Selsey area with 3 different services offering connections to various destinations including Selsey Academy, Chichester and the village of Bracklesham. Furthermore, there is both Primary and Secondary Schools within Selsey, each within a 2km walking distance of the site.
- 3.42. Both schools are currently not operating at full capacity according to WSCC Planning School Places 2021. This shows capacity use at the Primary School being at only 67% and 57% at the Secondary School. There is therefore capacity at each of the schools to cater for children of relevant age living at this development.

Public Transport – Rail

- 3.43. The nearest railway station to the site is located at Chichester which is a 11km journey to the north.
- 3.44. This railway station can be easily accessed by the Route 51 bus which stops in Chichester bus station which is adjacent to the railway station.



- 3.45. The station is located on the West Coastway Line and allows for travel to destinations around the south east. Table 3.4 summarises the rail services that are available from Chichester railway station.

Table 3.4 – Chichester Rail Station (Summary of Services)

Destination	Avg. Journey Time	Frequency (tph*)
London Victoria	1 hour 45 mins	2
Brighton	51 min	2
Littlehampton	20 min	2
Southampton Central	54 min	2-3
Portsmouth and Southsea	37 min	3

- 3.46. As can be seen, destinations further afield are easily accessible by rail and can significantly reduce travel time compared to a typical journey time by private car. The station is accessible by bicycle, having 180 cycle storage spaces, as well as by bus, which stops outside the station.
- 3.47. There is car parking at the station with 202 spaces available, including 6 accessible spaces. Other facilities that are available at the station include: toilets, refreshment facilities and waiting rooms within staffed hours.

Potential Barriers to Sustainable Travel

- 3.48. This section shows that there is existing footways and public transport facilities in the vicinity of the site. Section 4 sets out how this is being enhanced as part of the development proposals.
- 3.49. There is currently a footway running along the B2145 on the eastern section of the site. This footway has a width of c.1-1.5m.
- 3.50. It is also planned to add a pedestrian crossing across the B2145 just above the B2145/Manor Rd roundabout. This would provide a safe connection across the B2145 and will give pedestrian access to the ASDA superstore and Manor Rd. Adjacent to the superstore and Manor Rd is a 3m wide combined pedestrian/cycle way which can be used to access the town of Selsey.
- 3.51. On the basis of this assessment and in the context of NPPF and local planning policy, it is considered that the site is sustainable. This is due to the large number of facilities that are within walking distance alongside the provision of public transport that connects to destinations further away.
- 3.52. It is of course recognised that travelling via modes other than a private vehicle may not be the most suitable or convenient travel choice for all residents all of the time. However, given the site's proximity to local facilities such as schools, the ASDA superstore as well as Selsey town centre, there is potential for trips generated by the development to be undertaken by sustainable non-car modes.

Summary

- 3.53. This section has reviewed in detail the site's accessibility in the context of existing infrastructure and facilities available.
- 3.54. It can be seen that there is non motor infrastructure in the vicinity of the site, although some improvements should be made to facilitate pedestrian access to the site.



3.55. The development proposals therefore adhere to the first key test of the NPPF given that the site affords appropriate opportunities for sustainable travel modes to be taken up.



4.0 Development Proposals

- 4.1. The allocation is envisaged for a development of up to 275 dwellings on the site. The primary access will be located on the B2145/Manor Rd roundabout and will be in the location of the current field access. This is in line with the preferred strategy identified by WSCC highways in their pre application response.
- 4.2. There is also the possibility of a secondary access to the site located on the northern boundary with the B2145.
- 4.3. Furthermore, potential for either a further vehicular access or just a pedestrian / cycle access is also being considered onto the eastern boundary of the site in line with the comments raised by WSCC Highways. This would at the minimum provide a direct route to the northbound bus stops, again as requested by WSCC. This is shown on the site masterplan.

Proposed Site Access

Primary Vehicle Access

- 4.4. The primary site access is located in the southwest corner of the site and will be located on the B2145/Manor Road roundabout. The proposed access arrangement is shown in drawing A377-SK003 and is included in **Appendix B** of this report.
- 4.5. The Primary access will feature the partial kerb realignment of the western portion of the roundabout in order for the site access to be widened. This will feature two access lanes onto the roundabout, one for left turns and a second for ahead and right turners. There will also be one lane to exit the roundabout into the site.

Secondary Accesses

- 4.6. There is the possibility of a secondary site access to the north of the site onto the B2145. The proposed arrangement is shown on Drawing A337-SK002 included in Appendix B.
- 4.7. The access arrangement is located in the centre of the northern portion of the site away from the bend at Norton Corner. This arrangement would feature a 3.5m turning lane and an associated 2-3m pedestrian crossing island. This would also feature improvements to the footway to the north of the B2145 alongside improvements to the footways within the village of Upper Norton.
- 4.8. Visibility splays of 4.5 x 82m have been shown as achievable on the access arrangement in both directions which is commensurate to an 85th percentile speed where a 40mph speed limit is present.
- 4.9. The access from the B2145 / Manor Road roundabout would be the primary access to the site, but the introduction of a secondary access will both increase permeability of the site as well as serve as an emergency access as required. As the Masterplan develops, the use and form of this access will be defined by that process.
- 4.10. The potential access onto the B2145 corridor is shown on Drawing A377-SK004 P1 included in Appendix B. This at present takes the form of a simple priority arrangement with footway link to the northbound bus stop. However, this is open for discussion with WSCC but does shown it is deliverable.



Proposed Pedestrian and Cycle Access

- 4.11. The drawing A377-SK003 shows how improvements to the pedestrian and cycle infrastructure will be made at the primary site access located on the B2145/Manor Rd roundabout. Access to the site itself will be via a 3m combined footway/cycleway on the northern side of the access carriageway. There will also be a 2m footway running along the southern edge of the access carriageway.
- 4.12. The 3m carriageway to the north of the access carriageway will connect to the footway that runs along the western edge of the B2145. There will also be a crossing point installed on the northern entrance/exit of the B2145 onto the roundabout. This will have the positive effect of connecting to the existing shared Footway/Cycle way that runs along an eastern portion of the B2145 and enters the supermarket entrance. The 3m footway/cycleway will also connect to the existing footway along the western edge of the B2145 where the nearest bus stop to the site is located.
- 4.13. The 2m footway that runs to the south of the site access will connect to the existing footway that runs along the western side of the B2145 south of the roundabout. This connection links into the wider footway network within the town of Selsey. There will also be a 2m wide crossing point located on the site entrance to facilitate pedestrians crossing from south to north across the site entrance.
- 4.14. There are also pedestrian and cycle access provided with the proposed secondary access to the north of the site, the pedestrian and cycle connections offered by this is discussed below.
- 4.15. To the north of the site the proposed access is located in the centre of the northern section of the site away from the bends to the east and west of it. This access proposal would feature a 2m pedestrian footway on each side of the access carriageway which would connect to the existing footway on the western side of the B2145. The footway to the western side of the site access would also be improved and extended into the hamlet of Upper Norton where the existing access to the private dwellings and fields would be formalised and retained. Two pedestrian crossings featuring islands would also be installed with one being located immediately east of the site access on the B2145 which will feature a 2-3m pedestrian island. The second would be located further to the west on Norton Corner and will feature a 2m pedestrian island. Improvements would be made to the footway on the northern side of the B2145 with the potential of extending the footway into the hamlet of Upper Norton.
- 4.16. All of the improvements proposed in drawing A377-SK002 are either located within the highway boundary or within the site boundaries.

Proposed Bus Stops

- 4.17. There are no new bus stops proposed as part of this development as there is a pair of bus stops located on the B2145 which is adjacent to the site and are located within 200m of the centre of the site. An access onto the B2145 would provide a direct link to the bus stops. It is noted that improvements are already due to be delivered at these bus stops, but any further improvements required will be discussed with WSCC highways.



4.18. The bus stops located on each side of the carriageway. The bus stop located on the western side of the B2145 is accessible via the existing footway that runs along the western edge of the B2145 while the bus stop located on the eastern side of the B2145 can be accessed by crossing the B2145 in the vicinity of the Manor Road roundabout. Alternatively there is an existing dropped kerb crossing of the B2145 in the vicinity of the southbound bus stop, this arrangement could be enhanced as part of the development works.

Car and Cycle Parking

4.19. Car and cycle parking is anticipated to be provided in accordance with the adopted West Sussex Councils ‘Guidance on Parking at New Developments’ September 2020. Table 4.1 summarises the parking standards to be used. However, it is noted that as this is an Outline application details of such would not be determined at this time.

Table 4.1: Parking Standards Summary

No. Bedrooms	Recommended Average Provision per Dwelling		Cycle Standard (minimum)
	Assigned	Visitor	
1	1.5	0.2	1 space
2	1.7	0.2	
3	2.2	0.2	
4+	2.7	0.2	

4.20. When determining the exact amount of parking provision required for the site, consideration will be given to the size and types of dwelling that are provided. A design led approach will be adopted that seeks to provide parking that is well integrated with the street instead of dominating it.

4.21. Most car owners like to see their vehicles or know that they are securely parked. On plot parking satisfies this desire and as such much of the parking on the development will be located within the curtilage of the dwelling through the use of on plot parking. There will also be well designed parking courts which are overlooked and preferred to on street parking.

Summary

4.22. The site access arrangement drawings have shown that the development can deliver accesses which are safe and suitable for all users with footway and cycleway access to the B2145 footway and the ability to safely cross the B2145 in the vicinity of the B2145/Manor Rd roundabout.

4.23. The development therefore complies with the second key transport test of the National Planning Policy Framework, in that it delivers safe and suitable access for all users.

4.24. Moreover, the new footway and cycle links being provided and the crossing provision will both act to help ensure that travel by sustainable modes is maximised, again in accordance with the requirements of the National Planning Policy Framework.



5.0 Traffic Generation, Assignment and Distribution

- 5.1. This section provides a review of the trip rates selected for use in the assessment and the resulting traffic generation, assignment and distribution onto the local highway network.

Trip Rates and Traffic Generation

- 5.2. The Trip rates were taken from comparable residential site in TRICS, this along with the proposed number of dwellings on the site has been used to calculate the likely traffic generation for the site. These were presented in the Scoping Note issued to WSCC highways and therefore form an agreed basis for the assessments.

Table 5.1: Trip Rates and Traffic Generation

Time Period	Arrivals.	Departures	Two-Way
	Trip Rates		
AM Peak	0.19	0.39	0.58
PM Peak	0.32	0.16	0.48
Traffic Generation – 275 Dwellings			
AM Peak	52	106	158
PM Peak	88	43	131

Traffic generation figures are rounded to the nearest whole number

- 5.3. As can be seen the development would generate a maximum of 158 two-way vehicle movements during the AM peak hour, this equates to 2.5-vehicles movements a minute.
- 5.4. The existing two way flow in peak hours along the B2145 is 1,649 vehicles per hour. This equates to a change of 9.6% compared to existing flows on the corridor. Given that it is widely acknowledged that daily fluctuations in traffic flows can change by up to 10% the development trips can be seen to be within normal daily fluctuations.

Baseline Traffic Flows

- 5.5. Given the ongoing situation in respect of COVID 19 it has not been possible at this time to obtain new traffic surveys which would be entirely representative of 'typical' baseline conditions.
- 5.6. As such baseline traffic flows were instead obtained from a variety of existing development sites and their accompanying publicly available planning submission documents. Such developments include the '19/00321/FUL' hybrid application for a phase 1 development of 119 residential dwellings and phase 2 for up to 74 dwellings and associated infrastructure at Manor Gardens (directly east of the site). Flows were also used from the planning application for up to 150 dwellings at land off the Main Road in Birdham West Sussex (21/01830/OUT). This application used ATC data from 2018 as well as some turning counts from 2017. Further turning counts were undertaken on 17th March 2021, although this was during periods of COVID restrictions the data has been validated against previous information and agreed with WSCC highways.

Development Traffic Assignment and Distribution

- 5.7. In order to develop a representative traffic model the development traffic has been assigned and distributed onto the local highway network based upon several data sources including, journey to work data from the 2011 census, and average journey times to key areas identified.
- 5.8. The journey to work data focuses on commuters traveling to and from the Chichester 014 area that includes Selsey and the site location.
- 5.9. **Appendix C** shows the workings of the JTW Census Data.

Table 5.2: 2011 Journey to Work Summary


Destination	Proportion of Trips	Chichester Area 014*
Chichester	57.6%	
Arun	11.2%	
Portsmouth	4.1%	
Havant	4.1%	
Worthing	1.7%	
Horsham	1.7%	
East Hampshire	1.4%	
Waverley	1.2%	
Crawley	1.2%	
Other	15.8%	
Total	100%	

Image of the Chichester 014 Map data © OpenStreetMap contributors, CC-BY-SA, Nomis

- 5.10. In addition to this data, average journey time information available on google maps has been used to help determine likely routing options. Table 5.3 summarises the routes identified and average journey times during the AM and PM peak hours.

Table 5.3: Average Peak Hour Driving Journey Times

Destination	% Traffic	Route Options	Journey Time
Chichester (including Selsey)	57.6%	Split 50/50 South on the B2145 or Manor Road & North on the B2145	2 min / 18 min
Arun	11.2%	North on the B2145 then on B1266	33 min
Portsmouth	4.1%	North on B2145 then B2201 then take A27 west	31 min
Havant	4.1%	North on B2145 then B2201 then take A27 west	27 min
Worthing	1.7%	North on the B2145 then A27 east	49 min
Horsham	1.7%	North on the B2145 then A27 east then B2139 north to the A24	1 hour 4 min
East Hampshire	1.4%	North on B2145 then B2201 then take A27 west then north on the A3	39 min
Waverley	1.2%	North on B2145 then B2201 then take A27 west then north on the A3	58 min
Crawley	1.2%	North on the B2145 then A27 east then B2139 north to the A24	1 hour 15 min
Other	15.8	N/A	N/A

- 5.11. The journey to work summary shown in Table 5.2 shows that the majority of trips to work stay in the local area with more than 50% of trips being to the Chichester merged local authority district (this district includes the town of Selsey itself). The next most popular work destination was Arun with 11.2% of trips. There were also smaller numbers of commuters traveling to the further away districts including Portsmouth, Havant and East Hampshire.
- 5.12. The majority of commuters from Selsey have a journey by car of less than 20 min which represents the average time it takes to drive from Selsey to Chichester. More than 80% of individuals have a commute by car that lasts less than 1 hour according to data from the census. This pattern is likely to have been further reduced since the COVID pandemic with the rise in prevalence of working from home and hybrid working models. As such, assuming commuting patterns in line with pre pandemic trends represents a worse case and robust assessment.
- 5.13. The close proximity of commuting destinations to the site and Selsey highlights the potential of public transport to replace car journeys in commutes.
- 5.14. On the basis of this exercise, it can be determined that the directional split of developmental traffic at the proposed site access would result in 75% of vehicles traveling north along the B2145 north from the site while 25% of vehicles would utilise the B2145 to travel south from the site into Selsey.
- 5.15. It was further determined based on commuting destinations in data from the 2011 census that individuals who intended to travel west on the A27 Chichester bypass would likely utilise the B2201 which connects to the A286 and offers a connection to the A27 at the Stockbridge roundabout. This would offer faster connections to western destinations than utilising the B2145 and connecting to the A27 via the B2145/Chichester Bypass Roundabout.



- 5.16. On the other hand, individuals traveling east on the B2145 would utilise the B2145 and connect to the A27 via the B2145/Chichester Bypass roundabout.
- 5.17. It was determined that a total of 45% of vehicles traveling north on the B2145 would utilise the B2202 to travel west while 55% would continue to travel on the B2145 to travel in an easterly direction.
- 5.18. It was determined that individuals traveling to Chichester would utilise both the B2145 and the B2202 because both connect to the centre of Chichester and have been assigned 50/50 to each road.

Background Traffic Growth

- 5.19. It is considered at this stage that the inclusion of development traffic from the potential development of 275 dwellings on land west of the B2145 Chichester Road would sufficiently account for any future growth to the end of Local Plan that would occur within Selsey. As such and to avoid likely 'double counting' no traffic growth has adjusted to account for the reduction of 275 units from the forecasted growth projections. WSCC have indicated their broad acceptance of this stance for this stage of the process.

6.0 Development Impact Assessment

- 6.1. Based upon the traffic generation, distribution and assignment of development traffic the following junctions have been identified for inclusion within the traffic impact study area:
- The site access on the B2145 / Manor Rd Roundabout
 - The B2145 / B2201 Priority Junction
 - The B2201 / A286 Priority Junction
 - The B2145 / B2166 Roundabout
- 6.2. To ensure a full and robust assessment the following scenarios have been assessed:
- 2022 baseline
 - 2032 baseline
 - 2032 baseline + development
- 6.3. The capacity assessments have been undertaken using Junctions 10 with the full capacity output reports being included in **Appendix D**.
- 6.4. Tables 6.1 – 6.4 summarise the results of the capacity assessments.

Table 6.1– Site Access B2145 / Manor Rd Roundabout

Arm	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
2022 Baseline				
B2145 (N)	0.49	1	0.71	2
Supermarket	0.14	0	0.37	1
Manor Rd	0.44	1	0.71	2
B2145 (S)	0.35	1	0.49	1
Site Access	0.00	0	0.00	0
2032 Baseline				
B2145 (N)	0.49	1	0.71	2
Supermarket	0.14	0	0.37	1
Manor Rd	0.44	1	0.71	2
B2145 (S)	0.35	1	0.49	1
Site Access	0.00	0	0.00	0
2032 Baseline + Development				
B2145 (N)	0.52	1	0.76	3
Supermarket	0.14	0	0.39	1
Manor Rd	0.46	1	0.75	3
B2145 (S)	0.37	1	0.54	1
Site Access	0.14	0	0.08	0

6.5. As shown in the table above, the development proposals will only have a marginal impact on the B2145/Manor Rd roundabout. In all scenarios tested the junction runs at under capacity and there was only a marginal increase in the RFC when the development was included in the modelling. As such no additional mitigation is considered necessary on this roundabout.

Table 6.2– B2145/B2201 Junction

Arm	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
2022 Baseline				
B2201 to B2145(N)	0.31	1	0.62	2
B2201 to B2145 (S)	0.47	1	0.77	3
B2145(N) to B2201	0.32	1	0.45	2
2032 Baseline				
B2201 to B2145(N)	0.31	1	0.62	2
B2201 to B2145 (S)	0.47	1	0.77	3
B2145(N) to B2201	0.32	1	0.45	2
2032 Baseline + Development				
B2201 to B2145(N)	0.35	1	0.99	9
B2201 to B2145 (S)	0.55	2	0.98	11
B2145(N) to B2201	0.33	1	0.47	2

6.6. As shown in the table above, the B2145/B2201 junction operates below capacity during the AM peak period with their only having been a minor increase in the RFC and queue length. During the PM peak hour the introduction of development traffic does result in the junction experiencing minor increases in queue length. However, the junction still operates within capacity with an RFC below 1.0.

Table 6.3– B2201/A286 Mini Roundabout

Arm	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
2022 Baseline				
A286 (N)	0.77	3	0.81	4
B2201	0.49	1	0.41	1
A286 (S)	0.54	1	0.56	1
2032 Baseline				
A286 (N)	0.84	5	0.87	6
B2201	0.55	1	0.46	1
A286 (S)	0.60	2	0.61	2
2032 Baseline + Development				
A286 (N)	0.85	5	0.91	8
B2201	0.61	2	0.48	1
A286 (S)	0.62	2	0.62	2

6.7. The B2201/A286 mini roundabout is shown to operate at less than capacity on all arms and operate at optimal capacity on all arms with the exclusion of the A286(N) during the 2032 baseline and the 2032 + Development scenarios. The development only adds a small amount to the RFC with it increasing from 0.87 to 0.91. The development only has a small impact on this junction.



Table 6.4– B2145/B2166 Roundabout

Arm	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
2022 Baseline				
B2145 (N)	0.49	1	0.76	3
B2166	0.80	4	0.46	1
B2145(S)	0.54	1	0.43	1
2032 Baseline				
B2145 (N)	0.53	1	0.83	5
B2166	0.88	7	0.51	1
B2145(S)	0.60	2	0.47	1
2032 Baseline + Development				
B2145 (N)	0.55	1	0.86	6
B2166	0.89	7	0.52	1
B2145(S)	0.63	2	0.48	1

6.8. The development proposals would only have an extremely minor impact on the B2145/B2166 roundabout, with a small increase in the RFC and an increase in queue length of one vehicle on the B2145(N) junction during the PM peak. This small increase due to the development is likely due to the junction’s distance from the site and the dispersion of traffic. The roundabout runs within capacity in all three scenarios tested.

Impact on A27

6.9. The development proposals would likely result in an additional 50 movements at the Stockbridge Roundabout and 60 movements at the Whyke Roundabout in a peak one hour period. This equates to or less than 1 additional movement per minute. In context the two way peak hour flow along this section is in the region of 3,500 movements, the development proposals would therefore result in a less than 2% change in traffic flows in a robust worst case scenario. This is within daily variations in traffic flows.

6.10. National Highways are currently consulting on and have secured developer contributions towards significant improvements along the A27 corridor. We will therefore anticipate that they will consider this site in the context of such work which has been undertaken to date.

6.11. It is understood that in all Local Plan scenarios tested by CDC and WSCC they have allowed for a development of less than 300 units at Selsey as part of the strategic growth patterns.

Summary

6.12. The junction assessment modelling shows that the site access junction onto the B2145/Manor Rd roundabout runs in 2032 with the development at a maximum RFC of 0.76 and a vehicle queue of 3 vehicles. This shows that the roundabout runs within capacity and the majority of arms run within optimum capacity under all scenarios.

6.13. Similarly, all junctions run within capacity. Minor increases in queuing are experienced at the B2145/B2201 junction during the PM peak period. The junction would however still run in a safe manner due to the fact that delays are on the minor arm and the major arm remains free flowing.



- 6.14. Outside of this study area the development proposals would have a negligible impact with increases below 30 movements in any 1 hour period, and change in traffic flow of less than 2% which is well within daily variations.
- 6.15. While the development site is not currently allocated for development (which is the purpose of the process), the site has been identified as one suitable for residential development.
- 6.16. As has been demonstrated within the assessment the site is clearly in a sustainable location with numerous opportunities to make use of existing walking, cycling and public transport provisions.
- 6.17. It is reasonable to conclude that the site along with those allocated sites that come forward within the local plan period will be part of the planned development for the area, and therefore the proposal would not result in additional demand on the network other than that already assessed as part of the strategic transport assessment through the local plan housing delivery targets. As such additional 'sensitivity' testing is unnecessary.
- 6.18. ALP are aware of improvements Highways England (HE) are currently consulting on relating to the A27 Chichester Bypass (BABA27). Various options appear to have been discussed however no final scheme has been agreed.
- 6.19. Given the very marginal impact the development has been demonstrated to have, it is considered beyond the reasonable scope for this assessment to consider in detail impacts further afield that would otherwise be suitably mitigated via contributions made in line with Chichester's adopted policies for mitigation of impacts on the A27 as part of a S106 agreement.
- 6.20. In this way, the cumulative effect of development coming forward across a number of sites can be considered to having been taken into account
- 6.21. It is in this context that the proposed development is not considered to result in a 'Severe' highway impact on the operation of the local highway therefore according with the third key transport test of the NPPF.



7.0 Summary and Conclusion

- 7.1. This Transport Assessment has been prepared in support of a proposed development site of up to 275 dwellings on land west of the B2145, Selsey, West Sussex. The site is located on the northern fringe of Selsey adjacent to the B2145.

Access Arrangements

- 7.2. The primary site access is proposed via the five arm B2145/Manor Road roundabout that is located on the south eastern boundary of the site. The access arrangement has been shown to be deliverable within Highway Land or land that the applicant controls while adhering to the design standards that are required for the speed limit of the roundabout.
- 7.3. Capacity assessments have also shown that the B2145/Manor Rd roundabout has sufficient capacity to accommodate the traffic flows produced by this development.
- 7.4. However, a secondary access is proposed along the sites northern boundary with the B2145 in order to increase permeability of the site and act as an emergency access as required. This will take the form of a priority junction. A further access onto the sites eastern boundary is also being considered and will be subject to further discussion with WSCC highways.
- 7.5. Additional footway and cycling provision will be delivered as part of the access works to link the site access to the wider highway network. In particular this will involve the provision of pedestrian crossings in order to cross the B2145 and improved/new footways.

Sustainability

- 7.6. The proposal will feature a new footway/cycleway connection across the B2145 to the north of the B2145/Manor Rd roundabout. This will provide access between the site access and the 3m footway/cycleway to the east of the B2145. This crossing will offer a safe crossing of the B2145 facilitating access to the bus stop on the eastern side where there is no current pedestrian crossing. This will in turn tie the site into existing infrastructure, providing safe and sustainable routes for future residents to access local services and facilities by a number of sustainable travel modes. There is a large number of facilities within walking distance to the site's proximity to the town of Selsey.
- 7.7. The local bus services operating along the sites eastern boundary, provides a frequent (every 20 mins) service into Chichester and operates for an extensive 16 hour period of the day. This therefore does provide opportunities for residents to travel to Chichester (the major local destination for employment, retail, and evening entertainment) by sustainable means.

Traffic Impact

- 7.8. The developer will be delivering access arrangements that provide sufficient capacity for the development. The primary access will be located on the B2145/Manor Rd roundabout in the current location of the field access. There is also the possibility of a secondary access along the northern edge of the site on the B214f as well as the eastern boundary



7.9. Outside of this, the development proposals (on a stand alone basis) do not result in a 'severe' impact on any junction within the study area assessed.

Conclusion

7.10. The development has therefore shown to accord with the three key transport tests of the NPPF namely being that:

- Appropriate opportunities to promote sustainable transport modes have been shown to be able to be taken up;
- Safe and suitable access to the site has shown to be deliverable for all users; and
- The development does not have a severe impact on the operation of the local highway network and any cumulative impact could be mitigated through appropriate contributions.

7.11. On the basis of the assessment that has been undertaken it is considered that there are no reasons from a highways or transport perspective why the development proposals would be unacceptable; thereby allowing the site to be allocated as a sustainable site for development in the Local Plan Review.



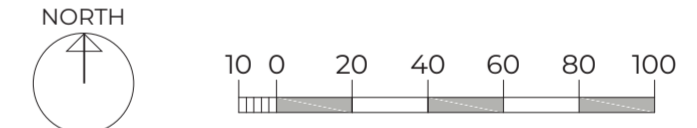
Appendices



Appendix A – Land Use Strategy Plan



- The Site - 11.4ha
- Adjacent Land Owned by the Applicant - 5.4ha
- Proposed Tree Lined Primary Road
- Potential Secondary Access Points
- Proposed Access to Pumping Station, Sports Pitches & Rife Maintenance
- Green Areas (inc. Existing Features, Play Space, Amenity Space, Natural/Semi-Natural Green Space & Pavilion)
- Proposed Sports Pitches
- Indicative New Sports Pavilion
- Existing Woodland/Trees
- Proposed Buffer/ Tree Planting
- Proposed Hedgerow Planting
- Residential
- Allotments (exc. Parking Area)
- Play Space - NEAP (30m Buffer)
- Play Space - LAP
- SuDS Attenuation Basin
- Pumping Station
- Multi-functional Green Space (inc. Biodiversity Improvements, Access & Pumping Station)



Rev	Date	Description	By

BOYLE + SUMMERS
ARCHITECTURE AND MASTERPLANNING

Canute Chambers
Canute Road
Southampton
Hampshire
SO14 3AB

Client	Landlink Estates
Project	Selsey North
Title	Land Use Strategy

SEN--BSL	ZZ--XX	DR--A	15 01 - PL
<small>Project</small>	<small>Originator</small>	<small>Volume</small>	<small>Level</small>
<small>Series</small>	<small>Number</small>	<small>Type</small>	<small>Role</small>
<small>Suitability</small>	<small>Revision</small>	<small>Scale @A2</small>	<small>Drawn</small>
<small>Checked</small>	<small>Date</small>	<small>Scale @A2</small>	<small>Drawn</small>
21099	Mar 2022	1:2000	IC/SR
			RS

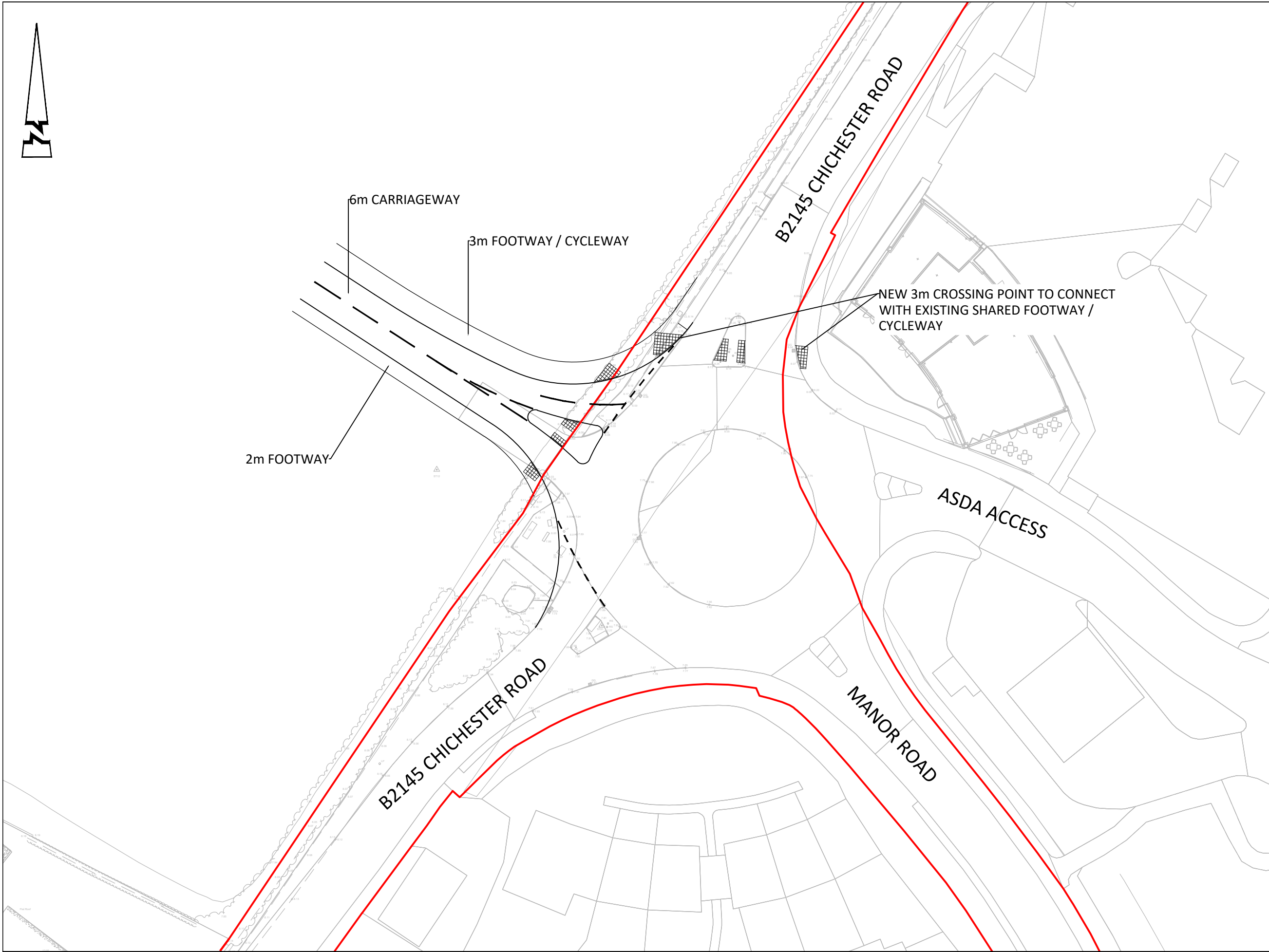
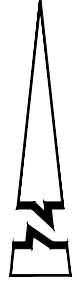
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MANOR GARDENS
UNDER CONSTRUCTION
(119 DWELLINGS + 74
DWELLINGS FUTURE PHASE)



Appendix B – Access Drawing



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KEY
— HIGHWAY BOUNDARY

Rev	Date	Description	Drawn	Checked
P1	01.22	FIRST ISSUE	TDM	NB

AL ABLEY LETCHFORD
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3 Tealgate, Charnham Park
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Client
LANDLINK ESTATES

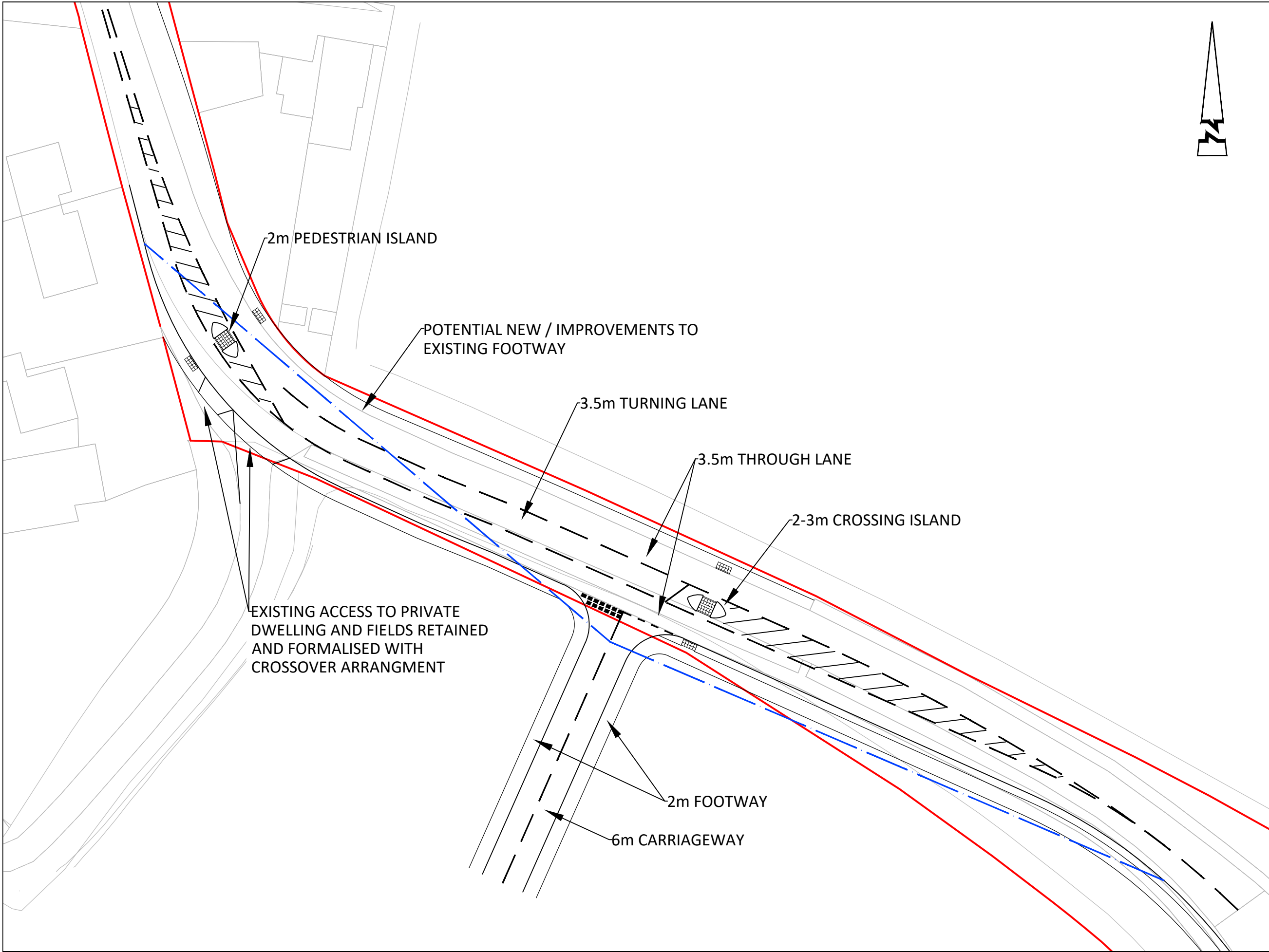
Project
**LAND WEST OF B2145
CHICHESTER ROAD, SELSEY**

Title
**POTENTIAL ACCESS
ARRANGEMENT
B2145 ROUNDABOUT**

Status
PRELIMINARY

Scale	Date	Drawn	Checked
1:500 @ A3	JAN 2022	TDM	NB

Drawing No	Revision
A377-SK003	P1



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- KEY**
- 4.5m X 82m VISIBILITY SPLAY (BASED ON A 40mph 85TH PERCENTILE SPEED)
 - HIGHWAY BOUNDARY

P1	01.22	FIRST ISSUE	TDM	NB
Rev	Date	Description	Drawn	Checked

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Consulting Engineers

3 Tealgate, Charnham Park
Hungerford, Berkshire RG17 0YT
www.alpce.co.uk Tel: 01488 684390

Client
LANDLINK ESTATES

Project
LAND WEST OF B2145 CHICHESTER ROAD, SELSEY

Title
POTENTIAL ACCESS ARRANGEMENT

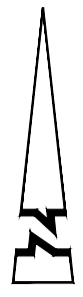
Status
PRELIMINARY

Scale	Date	Drawn	Checked
1:500 @ A3	JAN 2022	TDM	NB

Drawing No	Revision
A277-SK002	P1

KEY

- 4.5m X 120m VISIBILITY SPLAY
- HIGHWAY BOUNDARY



BUS STOP LAYBY IMPROVEMENT TO BE DELIVERED AS PART OF APPROVED VECTOS S278 DRAWING W131177-S278-01 C

2m FOOTWAY TO TIE IN WITH EXISTING FOOTWAY ALONG SITE FRONTAGE

6m CARRIAGEWAY
2m FOOTWAY TO TIE IN WITH EXISTING FOOTWAY ALONG SITE FRONTAGE

B2145 CHICHESTER ROAD

P1	01.22	FIRST ISSUE	TDM	NB
Rev	Date	Description	Drawn	Checked



3 Tealgate, Charnham Park
Hungerford, Berkshire RG17 0YT
www.alpce.co.uk Tel: 01488 684390

Client
LANDLINK ESTATES

Project
LAND WEST OF B2145 CHICHESTER ROAD, SELSEY

Title
POTENTIAL EASTERN ACCESS ARRANGMENT B2145 CHICHESTER ROAD

Status
PRELIMINARY

Scale	Date	Drawn	Checked
1:500 @ A2	MARCH 2022	TDM	NB

Drawing No	Revision
A377-SK004	P1



Appendix C – JTW Census Data

WU03EW - Location of usual residence and place of work by method of travel to work (MSOA level)

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population All usual residents aged 16 and over in employment the week before the census
 units Persons
 date 2011
 usual residence E02006574 : Chichester 014 (2011 super output area - middle layer)

place of work	All categories: Method of travel to work (2001 specification)		Direction on the Chichester bypass	Direction on the Chichester bypass	Number	SUM	
	Driving a car or van						
E02006570 : Chichester 010	412	307	NA				
Arun	214	192	E	E	12	529	55.05%
E02006568 : Chichester 008	240	185	NA	W	21	432	44.95%
E02006573 : Chichester 013	183	155	NA				
E02006572 : Chichester 012	135	108	E				
E02006566 : Chichester 006	104	94	E			961	
E02006571 : Chichester 011	91	72	W				
Portsmouth	90	71	W		total	1719	
Havant	79	71	W				
Worthing	34	30	E		Chichester	991	57.6%
Horsham	33	29	E		Arun	192	11.2%
E02006567 : Chichester 007	29	27	W		Portsmouth	71	4.1%
East Hampshire	27	24	W		Havant	71	4.1%
Waverley	27	21	W		Worthing	30	1.7%
Crawley	32	21	E		Horsham	29	1.7%
Fareham	19	19	W		East Hampshire	24	1.4%
E02006569 : Chichester 009	26	18	W		waverly	21	1.2%
Winchester	22	18	W		crawley	21	1.2%
Eastleigh	13	13	W		Fareham	19	1.1%
Guildford	14	12	W				
Reigate and Banstead	12	12	E				
E02006564 : Chichester 004	18	10	E				
E02006565 : Chichester 005	21	10	E				
Basingstoke and Deane	10	9	W				
Mid Sussex	12	9	E				
Hounslow	8	8	W				
Brighton and Hove	11	8	E				
Hillingdon	8	7	W				
Merton	9	7	W				
Runnymede	7	7	W				
Richmond upon Thames	7	6	W				
Wandsworth	8	6	W				
Southampton	7	6	W				
Adur	7	6	E				
Sutton	5	5	W				
Elmbridge	5	5	W				
Ealing	5	4					
Slough	5	4					
Test Valley	5	4					
Oxford	5	4					
Mole Valley	4	4					
E02006563 : Chichester 003	4	3					
Manchester	3	3					
Lewisham	3	3					
Bracknell Forest	6	3					
West Berkshire	3	3					
Lewes	4	3					
New Forest	3	3					
Rushmoor	3	3					
Bristol, City of	3	3					
E02006562 : Chichester 002	5	2					
Coventry	2	2					
St Albans	2	2					
Croydon	2	2					
Hammersmith and Fulham	6	2					
Kingston upon Thames	2	2					
Windsor and Maidenhead	3	2					
Wokingham	2	2					
South Bucks	2	2					
Wealden	2	2					
Surrey Heath	2	2					
Wiltshire	2	2					
East Dorset	2	2					
Newcastle upon Tyne	2	1					
Bolton	1	1					
East Riding of Yorkshire	1	1					
Derby	1	1					
Mansfield	1	1					
Cannock Chase	1	1					
Stratford-on-Avon	1	1					
Warwick	1	1					
Dudley	1	1					
Luton	1	1					
Bedford	1	1					
Central Bedfordshire	1	1					
Chelmsford	1	1					
Hertsmere	1	1					
Watford	1	1					
Welwyn Hatfield	1	1					
Bromley	1	1					
Enfield	1	1					
Hackney	2	1					
Harrow	2	1					
Havering	1	1					
Islington	1	1					
Lambeth	5	1					
Tower Hamlets	1	1					
Westminster, City of London	17	1					
Medway	1	1					
Reading	1	1					
Rother	1	1					
Gosport	1	1					
Hart	1	1					
Swale	1	1					
South Oxfordshire	1	1					
Tandridge	1	1					
Woking	5	1					
South Gloucestershire	1	1					
Plymouth	1	1					
Purbeck	1	1					
Tewkesbury	1	1					

In order to protect against disclosure of personal information, records have been swapped between different geographic areas. Some counts will be affected, particularly small counts at the lowest geographies.



Appendix D – Junctions 10 Reports

<h1>Junctions 10</h1>
<h2>ARCADY 10 - Roundabout Module</h2>
Version: 10.0.1.1519 © Copyright TRL Software Limited, 2021
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Filename: A377 Roundabout 275 Dwellings Growth 0.j10

Path: P:\A377 Land West of B2145 Chichester Road, Selsey\Deliverables\Transport\Modelling\Junction

Report generation date: 15/02/2022 10:55:47

«2032 + Dev 75% Chichester 25% Selsey, PM

»Junction Network

»Arms

»Traffic Demand

»Origin-Destination Data

»Vehicle Mix

»Results

Summary of junction performance

		AM						PM							
	Set ID	Queue (Veh)	95% Queue (Veh)	Delay (s)	RFC	LOS	Junction Delay (s)	Set ID	Queue (Veh)	95% Queue (Veh)	Delay (s)	RFC	LOS	Junction Delay (s)	
2022															
Arm 1	D1	0.9	1.5	4.96	0.49	A	5.32	D2	2.4	5.8	9.15	0.71	A	9.58	
Arm 2		0.2	0.5	3.87	0.14	A			0.6	2.7	5.84	0.37	A		
Arm 3		0.8	2.7	6.76	0.44	A			2.4	9.7	14.76	0.71	B		
Arm 4		0.5	2.5	4.94	0.35	A			1.0	2.5	6.94	0.49	A		
Arm 5		0.0	~1	0.00	0.00	A			0.0	~1	0.00	0.00	A		
2032															
Arm 1	D3	0.9	1.5	4.96	0.49	A	5.32	D4	2.4	5.8	9.15	0.71	A	9.58	
Arm 2		0.2	0.5	3.87	0.14	A			0.6	2.7	5.84	0.37	A		
Arm 3		0.8	2.7	6.76	0.44	A			2.4	9.7	14.76	0.71	B		
Arm 4		0.5	2.5	4.94	0.35	A			1.0	2.5	6.94	0.49	A		
Arm 5		0.0	~1	0.00	0.00	A			0.0	~1	0.00	0.00	A		
2022 + Dev 75% Chichester 25% Selsey															
Arm 1	D8	1.1	1.5	5.39	0.52	A	5.68	D9	3.1	12.7	11.44	0.76	B	11.41	
Arm 2		0.2	0.5	4.03	0.14	A			0.6	2.9	6.31	0.39	A		
Arm 3		0.9	2.7	7.27	0.46	A			2.9	13.6	17.91	0.75	C		
Arm 4		0.6	2.7	5.21	0.37	A			1.1	2.4	7.92	0.54	A		
Arm 5		0.2	0.5	5.45	0.15	A			0.1	0.5	6.38	0.08	A		
2032 + Dev 75% Chichester 25% Selsey															
Arm 1	D12	1.1	1.5	5.39	0.52	A	5.68	D13	3.1	12.7	11.44	0.76	B	11.41	
Arm 2		0.2	0.5	4.03	0.14	A			0.6	2.9	6.31	0.39	A		
Arm 3		0.9	2.7	7.27	0.46	A			2.9	13.6	17.91	0.75	C		
Arm 4		0.6	2.7	5.21	0.37	A			1.1	2.4	7.92	0.54	A		
Arm 5		0.2	0.5	5.45	0.15	A			0.1	0.5	6.38	0.08	A		

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. Junction LOS and Junction Delay are demand-weighted averages.

File summary

File Description

Title	
Location	
Site number	
Date	17/01/2022
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	ALPCE\transportuser
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	Veh	Veh	perHour	s	-Min	perMin

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
✓		0.85	36.00	20.00

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D13	2032 + Dev 75% Chichester 25% Selsey	PM	ONE HOUR	17:45	19:15	15

2032 + Dev 75% Chichester 25% Selsey, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4, 5	11.41	B

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	11.41	B

Arms

Arms

Arm	Name	Description	No give-way line
1	Chichester Road (N)		
2	Store access		
3	Manor Road		
4	Chichester Road (S)		
5	Site access		

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Entry only	Exit only
1	3.20	8.30	15.8	8.0	41.0	50.0		
2	3.00	7.50	18.4	8.0	41.0	50.0		
3	3.40	5.80	3.4	20.0	41.0	50.0		
4	3.60	6.60	7.2	20.0	41.0	50.0		
5	3.00	5.80	5.0	20.0	41.0	20.0		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1	0.553	1483
2	0.544	1435
3	0.512	1166
4	0.554	1378
5	0.561	1255

The slope and intercept shown above include any corrections and adjustments.

Traffic Demand

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1		✓	920	100.000
2		✓	325	100.000
3		✓	539	100.000
4		✓	478	100.000
5		✓	43	100.000

Origin-Destination Data

Demand (Veh/hr)

		To				
		1	2	3	4	5
From	1	0	111	355	388	66
	2	98	0	128	99	0
	3	366	121	0	52	0
	4	331	99	26	0	22
	5	32	0	0	11	0

Vehicle Mix

Heavy Vehicle Percentages

		To				
		1	2	3	4	5
From	1	0	0	0	0	0
	2	0	0	0	0	0
	3	0	0	0	0	0
	4	0	0	0	0	0
	5	0	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS
1	0.76	11.44	3.1	12.7	B
2	0.39	6.31	0.6	2.9	A
3	0.75	17.91	2.9	13.6	C
4	0.54	7.92	1.1	2.4	A
5	0.08	6.38	0.1	0.5	A

Main Results for each time segment

17:45 - 18:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	693	192	1376	0.503	689	1.0	5.204	A
2	245	633	1091	0.224	244	0.3	4.245	A
3	406	496	912	0.445	403	0.8	7.019	A

4	360	487	1108	0.325	358	0.5	4.790	A
5	32	779	818	0.040	32	0.0	4.581	A

18:00 - 18:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	827	230	1355	0.610	825	1.5	6.760	A
2	292	759	1022	0.286	292	0.4	4.923	A
3	485	594	862	0.562	483	1.3	9.441	A
4	430	583	1054	0.408	429	0.7	5.750	A
5	39	933	731	0.053	39	0.1	5.199	A

18:15 - 18:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	1013	281	1327	0.763	1007	3.1	11.024	B
2	358	926	931	0.384	357	0.6	6.257	A
3	593	725	795	0.747	587	2.8	16.896	C
4	526	711	984	0.535	524	1.1	7.809	A
5	47	1139	616	0.077	47	0.1	6.334	A

18:30 - 18:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	1013	283	1326	0.764	1013	3.1	11.443	B
2	358	931	929	0.385	358	0.6	6.306	A
3	593	729	793	0.748	593	2.9	17.906	C
4	526	716	980	0.537	526	1.1	7.923	A
5	47	1146	612	0.077	47	0.1	6.377	A

18:45 - 19:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	827	233	1354	0.611	833	1.6	6.992	A
2	292	766	1018	0.287	293	0.4	4.968	A
3	485	599	860	0.564	491	1.3	9.916	A
4	430	591	1050	0.409	431	0.7	5.841	A
5	39	943	725	0.053	39	0.1	5.245	A

19:00 - 19:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	693	194	1375	0.504	695	1.0	5.309	A
2	245	639	1087	0.225	245	0.3	4.275	A
3	406	500	910	0.446	408	0.8	7.195	A
4	360	492	1105	0.326	361	0.5	4.843	A
5	32	787	813	0.040	32	0.0	4.611	A

Queue Variation Results for each time segment**17:45 - 18:00**

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1	1.00	0.55	1.00	1.40	1.45			N/A	N/A
2	0.29	0.00	0.00	0.29	0.29			N/A	N/A
3	0.79	0.55	1.00	1.40	1.45			N/A	N/A
4	0.48	0.00	0.00	0.48	0.48			N/A	N/A
5	0.04	0.00	0.00	0.04	0.04			N/A	N/A

18:00 - 18:15

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker

1	1.54	0.06	0.73	3.74	5.54			N/A	N/A
2	0.40	0.00	0.00	0.40	0.40			N/A	N/A
3	1.25	0.07	0.90	2.60	3.58			N/A	N/A
4	0.68	0.10	0.84	1.37	1.44			N/A	N/A
5	0.06	0.03	0.25	0.45	0.48			N/A	N/A

18:15 - 18:30

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1	3.07	0.03	0.29	3.07	12.68			N/A	N/A
2	0.62	0.03	0.25	0.62	0.62			N/A	N/A
3	2.75	0.03	0.31	3.89	13.64			N/A	N/A
4	1.13	0.03	0.26	1.13	1.13			N/A	N/A
5	0.08	0.03	0.26	0.47	0.49			N/A	N/A

18:30 - 18:45

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1	3.15	0.03	0.28	3.15	5.36			N/A	N/A
2	0.62	0.03	0.29	1.34	2.89			N/A	N/A
3	2.86	0.03	0.29	2.86	10.02			N/A	N/A
4	1.15	0.03	0.27	1.15	2.43			N/A	N/A
5	0.08	0.00	0.00	0.08	0.08			N/A	N/A

18:45 - 19:00

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1	1.60	0.06	0.81	3.84	5.65			N/A	N/A
2	0.41	0.00	0.00	0.41	0.41			N/A	N/A
3	1.32	0.05	0.56	3.16	4.77			N/A	N/A
4	0.70	0.12	0.87	1.38	1.44			N/A	N/A
5	0.06	0.00	0.00	0.06	0.06			N/A	N/A

19:00 - 19:15

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1	1.03	0.04	0.40	2.56	4.26			N/A	N/A
2	0.29	0.00	0.00	0.29	0.29			N/A	N/A
3	0.82	0.04	0.36	1.93	3.48			N/A	N/A
4	0.49	0.04	0.43	1.26	1.38			N/A	N/A
5	0.04	0.00	0.00	0.04	0.04			N/A	N/A

<h1>Junctions 10</h1>
<h2>PICADY 10 - Priority Intersection Module</h2>
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Filename: B2145B2201 Junction 275 Dwellings Growth 0.j10
Path: P:\A377 Land West of B2145 Chichester Road, Selsey\Deliverables\Transport\Modelling\Junction
Report generation date: 15/02/2022 10:58:06

«2032 , AM

- »Junction Network
- »Arms
- »Traffic Demand
- »Origin-Destination Data
- »Vehicle Mix
- »Results

Summary of junction performance

	AM							PM						
	Set ID	Queue (Veh)	95% Queue (Veh)	Delay (s)	RFC	LOS	Junction Delay (s)	Set ID	Queue (Veh)	95% Queue (Veh)	Delay (s)	RFC	LOS	Junction Delay (s)
2022														
Stream B-C	D1	0.4	~1	11.79	0.31	B	4.74	D2	1.6	?	34.48	0.62	D	12.19
Stream B-A		0.9	~1	23.76	0.47	C			3.1	?	69.56	0.77	F	
Stream C-AB		0.8	~1	6.40	0.32	A			1.6	?	7.45	0.45	A	
2032 + DEV 75 Chichester														
Stream B-C	D4	0.5	~1	14.14	0.35	B	5.60	D3	9.8	?	224.26	0.99	F	47.15
Stream B-A		1.2	?	29.07	0.55	D			11.1	?	213.58	0.98	F	
Stream C-AB		0.9	~1	6.46	0.33	A			1.7	?	7.52	0.47	A	
2032														
Stream B-C	D6	0.4	~1	11.79	0.31	B	4.74	D5	1.6	?	34.48	0.62	D	12.19
Stream B-A		0.9	~1	23.76	0.47	C			3.1	?	69.56	0.77	F	
Stream C-AB		0.8	~1	6.40	0.32	A			1.6	?	7.45	0.45	A	

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. Junction LOS and Junction Delay are demand-weighted averages.

File summary

File Description

Title	
Location	
Site number	
Date	09/02/2022
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	ALPCE\transportuser

Description	
-------------	--

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	Veh	Veh	perHour	s	-Min	perMin

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
✓		0.85	36.00	20.00

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D6	2032	AM	FLAT	08:00	09:00	60	15

2032 , AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Minor arm flare	Arm B - Minor arm geometry	Is flare very short? Estimated flare length is zero but has been increased to 1 because a zero flare length is not allowed.
Warning	Minor arm visibility to right	Arm B - Minor arm geometry	Visibility to right expected to have two components if the arm has two lanes, or two lanes in a flared section.
Warning	Flow Arm A	Analysis Options	Queue percentiles cannot be calculated for the selected traffic profile type.
Warning	Flow Arm B	Analysis Options	Queue percentiles cannot be calculated for the selected traffic profile type.
Warning	Flow Arm C	Analysis Options	Queue percentiles cannot be calculated for the selected traffic profile type.
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	Two-way	Two-way		4.74	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	4.74	A

Arms

Arms

Arm	Name	Description	Arm type
A	B2145 N		Major
B	B2201		Minor
C	B2145 S		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right-turn storage	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C	6.30			74.0	✓	0.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor arm type	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate flare length	Flare length (PCU)	Visibility to left (m)	Visibility to right (m)
B	One lane plus flare	9.00	4.40	3.30	3.30	3.30	✓	1.00	25	80

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (Veh/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
B-A	543	0.098	0.247	0.155	0.353

B-C	698	0.106	0.267	-	-
C-B	617	0.236	0.236	-	-

The slopes and intercepts shown above include custom intercept adjustments only.

Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Demand

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	530	100.000
B		✓	274	100.000
C		✓	582	100.000

Origin-Destination Data

Demand (Veh/hr)

	To			
	A	B	C	
From	A	0	0	530
	B	137	0	137
	C	466	116	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
	A	B	C	
From	A	0	0	0
	B	0	0	0
	C	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS
B-C	0.31	11.79	0.4	~1	B
B-A	0.47	23.76	0.9	~1	C
C-AB	0.32	6.40	0.8	~1	A
C-A					
A-B					
A-C					

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service

B-C	137	448	0.306	135	0.4	11.439	B
B-A	137	289	0.474	134	0.9	22.668	C
C-AB	264	830	0.318	261	0.8	6.317	A
C-A	318			318			
A-B	0			0			
A-C	530			530			

08:15 - 08:30

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	137	442	0.310	137	0.4	11.779	B
B-A	137	288	0.475	137	0.9	23.720	C
C-AB	266	832	0.320	266	0.8	6.397	A
C-A	316			316			
A-B	0			0			
A-C	530			530			

08:30 - 08:45

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	137	442	0.310	137	0.4	11.789	B
B-A	137	288	0.475	137	0.9	23.747	C
C-AB	266	832	0.320	266	0.8	6.398	A
C-A	316			316			
A-B	0			0			
A-C	530			530			

08:45 - 09:00

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	137	442	0.310	137	0.4	11.791	B
B-A	137	288	0.475	137	0.9	23.757	C
C-AB	266	832	0.320	266	0.8	6.398	A
C-A	316			316			
A-B	0			0			
A-C	530			530			

Queue Variation Results for each time segment**08:00 - 08:15**

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.43	~1	~1	~1	~1			N/A	N/A
B-A	0.86	~1	~1	~1	~1			N/A	N/A
C-AB	0.83	~1	~1	~1	~1			N/A	N/A

08:15 - 08:30

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.44	~1	~1	~1	~1			N/A	N/A
B-A	0.88	~1	~1	~1	~1			N/A	N/A
C-AB	0.84	~1	~1	~1	~1			N/A	N/A

08:30 - 08:45

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-C	0.45	~1	~1	~1	~1			N/A	N/A
B-A	0.89	~1	~1	~1	~1			N/A	N/A
C-AB	0.84	~1	~1	~1	~1			N/A	N/A

08:45 - 09:00

	Mean	Q05	Q50	Q90	Q95	Percentile	Marker	Probability of reaching	Probability of exactly
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Stream	(Veh)	(Veh)	(Veh)	(Veh)	(Veh)	message	message	or exceeding marker	reaching marker
B-C	0.45	~1	~1	~1	~1			N/A	N/A
B-A	0.89	~1	~1	~1	~1			N/A	N/A
C-AB	0.85	~1	~1	~1	~1			N/A	N/A

<h1>Junctions 10</h1>
<h2>ARCADY 10 - Roundabout Module</h2>
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Filename: B2201A286 Junction 275 Dwellings.j10

Path: P:\A377 Land West of B2145 Chichester Road, Selsey\Deliverables\Transport\Modelling\Junction

Report generation date: 15/02/2022 11:15:11

«2032 + 75 Chichester, PM

- »Junction Network
- »Arms
- »Traffic Demand
- »Origin-Destination Data
- »Vehicle Mix
- »Results

Summary of junction performance

		AM						PM						
	Set ID	Queue (Veh)	95% Queue (Veh)	Delay (s)	RFC	LOS	Junction Delay (s)	Set ID	Queue (Veh)	95% Queue (Veh)	Delay (s)	RFC	LOS	Junction Delay (s)
2022														
Arm A	D1	3.3	15.7	15.41	0.77	C	12.26	D2	4.0	20.5	18.10	0.81	C	13.35
Arm B		1.0	3.2	9.41	0.49	A			0.7	3.0	7.87	0.41	A	
Arm C		1.2	2.5	9.16	0.54	A			1.3	2.2	9.03	0.56	A	
2032														
Arm A	D3	4.8	24.7	21.04	0.84	C	15.81	D4	6.2	32.9	26.60	0.87	D	18.25
Arm B		1.2	3.5	11.10	0.55	B			0.8	3.2	8.88	0.46	A	
Arm C		1.5	2.8	10.65	0.60	B			1.6	2.6	10.49	0.61	B	
2032 + 75 Chichester														
Arm A	D5	5.4	27.6	23.45	0.85	C	17.54	D6	8.1	44.4	33.78	0.91	D	22.11
Arm B		1.5	4.0	12.63	0.61	B			0.9	3.2	9.22	0.48	A	
Arm C		1.6	3.2	11.56	0.62	B			1.6	2.9	10.82	0.62	B	

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. Junction LOS and Junction Delay are demand-weighted averages.

File summary

File Description

Title	
Location	
Site number	
Date	09/02/2022
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	ALPCE\transportuser

Description	
-------------	--

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	Veh	Veh	perHour	s	-Min	perMin

Analysis Options

Mini-roundabout model	Calculate Queue Percentiles	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
JUNCTIONS 9	✓		0.85	36.00	20.00

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D6	2032 + 75 Chichester	PM	ONE HOUR	08:00	09:30	15

2032 + 75 Chichester, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout		A, B, C	22.11	C

Junction Network

Driving side	Lighting	Road surface	In London	Network delay (s)	Network LOS
Left	Normal/unknown	Normal/unknown		22.11	C

Arms

Arms

Arm	Name	Description
A	A286 (N)	
B	B2201	
C	A286(S)	

Mini Roundabout Geometry

Arm	Approach road half-width (m)	Minimum approach road half-width (m)	Entry width (m)	Effective flare length (m)	Distance to next arm (m)	Entry corner kerb line distance (m)	Gradient over 50m (%)	Kerbed central island
A	3.20	3.20	5.40	2.0	11.00	5.70	0.0	
B	5.40	5.40	7.70	4.0	8.00	2.00	0.0	
C	4.10	4.10	4.30	1.0	20.00	16.00	0.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A	0.616	1037
B	0.712	1114
C	0.678	1087

The slope and intercept shown above include any corrections and adjustments.

Traffic Demand

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	839	100.000

B		✓	325	100.000
C		✓	496	100.000

Origin-Destination Data

Demand (Veh/hr)

	To			
	A	B	C	
From	A	0	370	469
	B	279	0	46
	C	471	25	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
	A	B	C	
From	A	0	0	0
	B	0	0	0
	C	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS
A	0.91	33.78	8.1	44.4	D
B	0.48	9.22	0.9	3.2	A
C	0.62	10.82	1.6	2.9	B

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	632	19	1025	0.616	625	1.6	8.870	A
B	245	350	866	0.283	243	0.4	5.770	A
C	373	209	945	0.395	371	0.6	6.241	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	754	22	1023	0.737	750	2.7	12.964	B
B	292	419	816	0.358	292	0.6	6.854	A
C	446	250	917	0.486	445	0.9	7.604	A

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	924	27	1020	0.906	905	7.3	27.756	D
B	358	506	754	0.474	356	0.9	9.023	A
C	546	306	879	0.621	543	1.6	10.637	B

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A								
B								
C								

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	924	28	1020	0.906	920	8.1	33.779	D
B	358	514	748	0.478	358	0.9	9.216	A
C	546	307	879	0.622	546	1.6	10.820	B

09:00 - 09:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	754	23	1023	0.737	775	3.0	15.580	C
B	292	433	806	0.362	293	0.6	7.042	A
C	446	252	916	0.487	449	1.0	7.744	A

09:15 - 09:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	632	19	1025	0.616	637	1.6	9.395	A
B	245	356	861	0.284	245	0.4	5.856	A
C	373	211	944	0.396	375	0.7	6.339	A

Queue Variation Results for each time segment**08:00 - 08:15**

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	1.56	0.60	1.05	1.85	1.95			N/A	N/A
B	0.39	0.00	0.00	0.39	0.39			N/A	N/A
C	0.65	0.55	1.00	1.40	1.45			N/A	N/A

08:15 - 08:30

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	2.67	0.07	1.11	6.94	10.35			N/A	N/A
B	0.55	0.55	1.00	1.40	1.45			N/A	N/A
C	0.93	0.10	0.91	1.41	1.79			N/A	N/A

08:30 - 08:45

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	7.25	0.05	0.84	20.99	35.78			N/A	N/A
B	0.89	0.03	0.26	0.89	0.89			N/A	N/A
C	1.59	0.03	0.27	1.59	2.86			N/A	N/A

08:45 - 09:00

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	8.12	0.04	0.39	20.11	44.43			N/A	N/A
B	0.91	0.03	0.28	0.91	3.23			N/A	N/A
C	1.62	0.03	0.27	1.62	2.73			N/A	N/A

09:00 - 09:15

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	2.96	0.04	0.42	8.19	14.82			N/A	N/A
B	0.58	0.08	0.76	1.35	1.43			N/A	N/A
C	0.96	0.08	0.89	1.62	1.95			N/A	N/A

09:15 - 09:30

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A	1.65	0.03	0.33	3.40	8.62			N/A	N/A
B	0.40	0.03	0.32	1.02	1.26			N/A	N/A

C	0.66	0.05	0.48	1.01	1.64			N/A	N/A
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<h1>Junctions 10</h1>
<h2>ARCADY 10 - Roundabout Module</h2>
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Filename: B2145B2166 Roundabout 275 Dwellings.j10

Path: P:\A377 Land West of B2145 Chichester Road, Selsey\Deliverables\Transport\Modelling\Junction

Report generation date: 15/02/2022 11:17:16

«2022, AM

- »Junction Network
- »Arms
- »Traffic Demand
- »Origin-Destination Data
- »Vehicle Mix
- »Results

Summary of junction performance

AM								PM						
Set ID	Queue (Veh)	95% Queue (Veh)	Delay (s)	RFC	LOS	Junction Delay (s)	Set ID	Queue (Veh)	95% Queue (Veh)	Delay (s)	RFC	LOS	Junction Delay (s)	
2022														
Arm 1	D1	0.9	1.7	4.86	0.49	A	9.08	D2	3.1	11.5	10.70	0.76	B	7.44
Arm 2		3.9	18.9	14.19	0.80	B			0.9	2.5	5.77	0.46	A	
Arm 3		1.2	1.6	5.87	0.54	A			0.8	2.4	3.87	0.43	A	
2032														
Arm 1	D3	1.1	1.5	5.39	0.53	A	13.05	D4	4.7	23.7	15.34	0.83	C	9.83
Arm 2		6.6	33.5	22.52	0.88	C			1.0	2.0	6.47	0.51	A	
Arm 3		1.5	1.6	6.95	0.60	A			0.9	1.8	4.19	0.47	A	
2032 + Dev														
Arm 1	D5	1.2	1.5	5.59	0.55	A	14.00	D6	5.7	29.5	18.31	0.86	C	11.35
Arm 2		7.1	38.1	24.60	0.89	C			1.1	2.0	6.76	0.52	A	
Arm 3		1.7	2.0	7.65	0.63	A			0.9	1.6	4.29	0.48	A	

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. Junction LOS and Junction Delay are demand-weighted averages.

File summary

File Description

Title	
Location	
Site number	
Date	09/02/2022
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	ALPCE\transportuser

Description	
-------------	--

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	Veh	Veh	perHour	s	-Min	perMin

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
✓		0.85	36.00	20.00

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2022	AM	ONE HOUR	08:00	09:30	15

2022, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3	9.08	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	9.08	A

Arms

Arms

Arm	Name	Description	No give-way line
1	B2145 (N)		
2	B2166		
3	B2145 (S)		

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Entry only	Exit only
1	3.60	6.70	9.0	13.5	17.0	5.0		
2	3.00	8.30	10.0	11.0	15.0	25.0		
3	4.30	7.00	12.0	15.0	16.0	20.0		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1	0.672	1635
2	0.611	1471
3	0.695	1811

The slope and intercept shown above include any corrections and adjustments.

Traffic Demand

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1		✓	636	100.000

2		✓	931	100.000
3		✓	646	100.000

Origin-Destination Data

Demand (Veh/hr)

	To			
	1	2	3	
From	1	0	348	288
	2	637	0	294
	3	383	263	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
	1	2	3	
From	1	0	0	0
	2	0	0	0
	3	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS
1	0.49	4.86	0.9	1.7	A
2	0.80	14.19	3.9	18.9	B
3	0.54	5.87	1.2	1.6	A

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	479	197	1502	0.319	477	0.5	3.505	A
2	701	216	1339	0.524	697	1.1	5.572	A
3	486	477	1480	0.329	484	0.5	3.609	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	572	236	1476	0.387	571	0.6	3.975	A
2	837	259	1312	0.638	834	1.7	7.490	A
3	581	571	1415	0.411	580	0.7	4.307	A

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	700	289	1441	0.486	699	0.9	4.845	A
2	1025	317	1277	0.803	1017	3.8	13.417	B
3	711	696	1328	0.536	709	1.1	5.804	A

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1								
2								
3								

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	700	290	1440	0.486	700	0.9	4.864	A
2	1025	317	1277	0.803	1025	3.9	14.195	B
3	711	701	1324	0.537	711	1.2	5.871	A

09:00 - 09:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	572	237	1475	0.388	573	0.6	3.993	A
2	837	259	1312	0.638	845	1.8	7.852	A
3	581	578	1409	0.412	583	0.7	4.362	A

09:15 - 09:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	479	198	1502	0.319	479	0.5	3.523	A
2	701	217	1338	0.524	704	1.1	5.700	A
3	486	481	1477	0.329	487	0.5	3.639	A

Queue Variation Results for each time segment**08:00 - 08:15**

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1	0.47	0.00	0.00	0.47	0.47			N/A	N/A
2	1.09	0.55	1.00	1.40	1.45			N/A	N/A
3	0.49	0.00	0.00	0.49	0.49			N/A	N/A

08:15 - 08:30

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1	0.63	0.10	0.83	1.37	1.43			N/A	N/A
2	1.72	0.05	0.68	4.36	6.60			N/A	N/A
3	0.69	0.09	0.81	1.38	1.45			N/A	N/A

08:30 - 08:45

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1	0.94	0.03	0.26	0.94	0.94			N/A	N/A
2	3.79	0.03	0.32	5.49	18.93			N/A	N/A
3	1.14	0.03	0.26	1.14	1.14			N/A	N/A

08:45 - 09:00

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1	0.94	0.03	0.27	0.94	1.67			N/A	N/A
2	3.92	0.03	0.28	3.92	11.28			N/A	N/A
3	1.15	0.03	0.27	1.15	1.65			N/A	N/A

09:00 - 09:15

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1	0.64	0.55	1.00	1.40	1.45			N/A	N/A
2	1.80	0.05	0.55	4.69	7.28			N/A	N/A
3	0.71	0.22	0.94	1.39	1.44			N/A	N/A

09:15 - 09:30

Arm	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
1	0.47	0.04	0.38	1.21	1.36			N/A	N/A
2	1.11	0.04	0.36	2.79	5.21			N/A	N/A

3	0.49	0.04	0.45	1.27	1.39			N/A	N/A
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Transport
Sustainable
Development Planning
Deliver
Trusted
Enable
Site Appraisal
Hydrology
Highways
Civil Engineering
Successful
Travel Planning
Support
Drainage
Dynamic
Masterplanning
Flood Risk Assessment
Infrastructure Design