NORTHSTOWE Phase 3A

Oakington Transport Technical Note

January 2021

Homes England

Northstowe Phase 3A: Southern Access Road East and Oakington Traffic Impacts

This note provides an overview of the background to the proposals for the Southern Access Road East (SARE) as part of the delivery of Northstowe Phase 3. This covers the purpose of the SARE, the background includes design issues and traffic impacts. The note seeks to respond to the comments made by Oakington and Westwick Parish Council and local residents.

Northstowe Phase 3A is an outline planning application and seeks permission for the principle of development. It does not contain detailed design proposals and the SARE has not been designed in detail at this stage although the outline planning application does identify a corridor for the line of the new road (see Movement and Access Parameter Plan) and an indicative design has been prepared to support the Transport Assessment. The indicative design shows a *possible* design for the new road.

The Purpose of the SARE

Whilst public transport and cycling will be realistic travel choices for future residents of Northstowe, transport modelling to support the Northstowe Area Action Plan (NAAP) in 2007, the Phase 2 application in 2014 and the Phase 3A outline planning application all indicated that a new link from Northstowe to the south east would be required for later phases of Northstowe. This is in addition to a link to an improved Hatton's Road and the A14 Bar Hill junction (now being constructed as the Southern Access Road West).

The NAAP in 2007 set out broad principles and included reference to "new road from the A14 or its parallel distributor road in the vicinity of the existing Dry Drayton junction into the southern end of Northstowe". In 2007 potential link options were assessed for the SARE based on a direct access to the A14 from Dry Drayton Road.

Since this time, the A14 has been implemented with the parallel local access road to Cambridge from Dry Drayton Road, but no direct connection to the A14. This has to an extent altered the requirements of the road to no longer provide access to the strategic road network but connecting via the local access route southwards. Thus, whilst there is still forecast to be a need for the road, it has a more local than strategic function. The traffic analysis undertaken to support the Phase 3A Application shows that the majority of traffic routing will be along the SARW towards the B1050 and the A14, rather than along the SARE. The potential character of the new road and its junctions in the indicative design that has been prepared seeks to reflect this.

Traffic Impact on Dry Drayton Road and Oakington

The traffic that would use the SARE would likely be going between Northstowe and the following areas:

- the south west (A428 Cambourne)
- Cottenham
- North west Cambridge

This traffic is estimated to be between 20 and 30% of Northstowe traffic depending on whether it is in the morning or evening peak and in which direction.

From the junction of the SARE with Dry Drayton Road, the south west traffic would go south west on Dry Drayton Road and cross over the A14. Traffic to Cottenham would go north east on Dry Drayton Road through Oakington.

Traffic south to north west Cambridge would be anticipated to travel south on Dry Drayton Road and then use the A1307 (new road) to Cambridge, as this is of a high standard and would give a shorter journey time to Cambridge compared to going via Oakington and Cambridge Road to connect to Huntingdon Road. A journey time comparison (Bing maps) gives 7 minutes for the A1307 route compared to 13 minutes via Cambridge Road in current uncongested conditions.

However, to make sure that we have not underestimated any impacts on Oakington, the Transport Assessment assumes that the larger proportion of this traffic uses the Oakington and Girton route. This is very much a worst case scenario to ensure the assessment is robust and does not underestimate impacts. In reality people will choose the fastest and easiest route and the A1307 will be a much better option for most journeys.

It should be noted that the same proportion of traffic from the already consented Phases 1 and 2 are also assumed to re-route in the future to use the SARE and travel on these routes. This is based on the origin and destination of traffic from these phases in the same way. This traffic has also been combined with that from the Phase 3A planning application on these routes in our assessment.

	Percentage of Total Traffic Using SARE to and from NW Cambridge			
	AM		**PM**	
Phase 3A				
Via Oakington	70%	54%	60%	60%
Via A1307	30%	46%	40%	40%
Total Northstowe (including Phase 1 and 2)				
Via Oakington	70%	54%	60%	60%
Via A1307	30%	46%	40%	40%

The Northstowe Phase 3A Transport Assessment sets out the difference in traffic in Oakington and on Cambridge Road due to the Phase 3A development with the SARE, with the flows shown in the Figures in the TA (Appendix J). We have compared what the traffic situation will be like without Northstowe Phase 3 and the SARE but including other developments in the area ('Without Development) to the situation with the proposed Development.

Table 1 shows the estimated flows of traffic on the key road links in 2036 with and without the Northstowe Phase 3A development, as compared to 2018, as well as taking into account the re-routeing of traffic from Phases 1 and 2. This is from Table 15-14 of the Environmental Statement.

Table 1 Northstowe Phase 3A Forecast Development Traffic Flows (Two-way) on Sensitive Links

Road Name	Link No.	Without Development			With Development			Percentage Change		
		AM Peak	PM Peak	18 Hour	AM Peak	PM Peak	18 Hour	AM Peak	PM Peak	18 Hour
Dry Drayton Road (outside Oakington)	490	1,472	1,032	12,128	1,989	1,463	16,715	**35%**	**42%**	**38%**
Local Access Road	500	1,472	1,032	12,128	2,074	1,632	17,946	**41%**	**58%**	**48%**
Dry Drayton Road (between Fare Acres Farm and Cambridge Road)	510	1,472	1,032	12,128	1,935	1,421	16,251	**31%**	**38%**	**34%**
Cambridge Road (within Oakington)	550	1,021	796	7,926	1,464	1,163	114,60	**43%**	**46%**	**45%**
Cambridge Road (within Oakington)	560	1,051	838	8,243	1,495	1,204	11,776	**42%**	**44%**	**43%**
Oakington Road / High Street / Cambridge Road / Girton Road (between A1307 Huntingdon Road and New Road)	590	1,227	1008	9,748	1,615	1,352	12,945	**32%**	**34%**	**33%**
A1307 Dry Drayton Road (section over A14 J30)	600	1,265	922	10,590	1,866	1301	15,337	**48%**	**41%**	**45%**
A1307 Dry Drayton Road (J30 connection with Oakington Road)	610	1,265	922	10,224	1,866	1,301	14,807	**48%**	**41%**	**45%**
Oakington Road (between A1307 and Springhill Stables)	620	787	758	7,222	1,152	1,183	10,914	**46%**	**56%**	**51%**
Oakington Road (between Springhill Stables and Park Street)	630	787	758	7,222	1,004	876	8,790	**28%**	**16%**	**22%**
SARW	940	1,852	2,197	23,780	2,048	2,484	26,615	**11%**	**13%**	**12%**
SARE	950	*This link does not exist.*			1,125	1,054	-	**100%**	**100%**	-

The junction assessments based on the forecast traffic flows (included in Table 2) show that the Dry Drayton Road / Water Lane / Cambridge Road junction would be over capacity in 2036 without Northstowe Phase 3A and this would be worsened by the development. This would result in additional queuing and delay. It should be noted that this is based on the worst case amount of traffic using this route compared to the new alternative A1307 to Cambridge.

Table 2: Forecast With and Without Development Degrees of Saturation of the Junction and Mean Maximum Queue Results for Oakington Cross Roads (Junction 09)

Arm	Without Development				With Development			
	AM Peak		PM Peak		AM Peak		PM Peak	
	DoS	MMQ	DoS	MMQ	DoS	MMQ	DoS	MMQ
Water Lane	**93.4%**	28.2	64.4%	9.8	**91.6%**	26.6	59.0%	9.1
Cambridge Road	**126.8%**	58.6	**87.7%**	17.2	**210.0%**	197.1	**129.4%**	121.6
Dry Drayton Road	**130.1%**	87	**85.3%**	12.3	**209.2%**	249.7	**126.8%**	84.3
Longstanton Road	0.0%	0	0.0%	0	0.0%	0	0.0%	0

Note: Degrees of Saturation (DoS) is a measure of how much demand it is experiencing compared to its total capacity. The degree of saturation (%) is a ratio of demand to capacity on each approach to the junction, with a value of 100% meaning that demand and capacity are equal and no further traffic is able to progress through the junction. Values over 85% are typically regarded as suffering from traffic congestion, with queues of vehicles beginning to form.

Junction Improvements

Improvements to the Oakington crossroads is a possibility and requires consideration. However, improvements to capacity at junctions could encourage more journeys using that route. The Transport Assessment acknowledges that the impact on the Oakington Crossroads will need mitigation (some improvement). There are minor phasing measures proposed, including running Cambridge Road and Longstanton Road simultaneously, and providing a right turn indicative arrow for the right turn movement from Dry Drayton Road, which would mitigate some of the impact and this is currently under discussion with CCC.

In addition, Homes England are discussing the potential to fund traffic calming measures in Oakington to further discourage traffic.

A scheme is also being developed to improve the Cambridge Road/ New Road junction to the south of Oakington, to reduce congestion in that location.

The Revised Transport Assessment for Phase 3A (January 2021) provides more information on mitigation proposals.

The SARE and the A14 Bar Hill Junction

The Transport Assessment (in Chapter 11, Mitigation) sets out that the need for the SARE is related to further improvements to the capacity of the Bar Hill roundabout junction with the A14. The Highways England scheme accommodates Phases 1 and 2 of Northstowe and made an allowance for accommodating Phase 3 within the junction design. This will require further improvements to provide this extra capacity.

The traffic analysis concludes that if the Bar Hill improvements are delivered first, this provides capacity for a further 2,000-3,000 homes (in addition to the 5,000 homes already approved within Phases 1 and 2) at the Bar Hill roundabout before the SARE is needed. This could mean the SARE is not required for some considerable time (circa 12/15 years).

Sensitivity Test

Cambridgeshire County Council has requested that an additional sensitivity test is undertaken that assumes a higher trip rate by car to and from Northstowe. This has also been agreed with Highways England. This is to seek to understand the maximum mitigation that might be

required for the 5,000 homes of Phases 3A and 3B together, should the worst case happen. The results of this are reported in Chapter 13 of the Revised Transport Assessment.

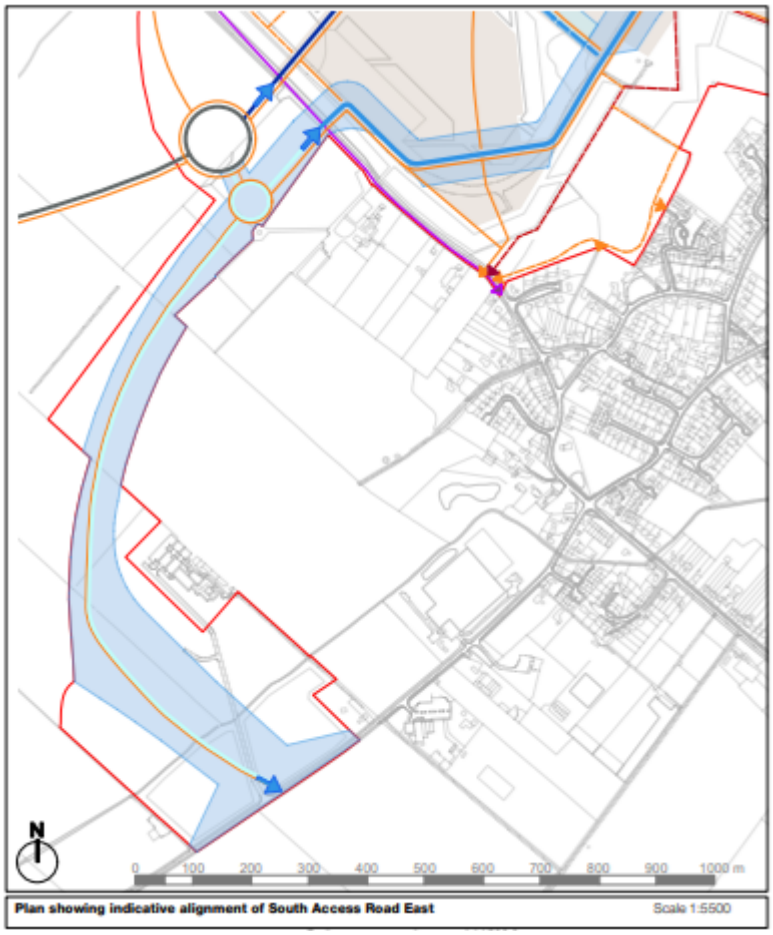
Monitor and Manage Approach

It is recognised that there is a significant opportunity to increase use of sustainable travel for journeys to and from Northstowe and reduce the traffic levels from the development. Indeed, when the NAAP was produced in 2007, the success of the Cambridgeshire Guided Busway (CGB) in terms of levels of use was not anticipated. In addition, the Cambridge Autonomous Metro (CAM) would transform journeys and reduce the need for people to drive and emerging methods of travel such as e-bikes make other modes much more attractive. Therefore, whilst provision is made as part of the Phase 3A outline planning application for the SARE, a monitor and manage approach is proposed, to assess travel patterns and inform when the SARE might be needed. As stated above the SARE may not be required for some considerable time and there is potential for significant changes to travel habits in the meantime.

SARE Design

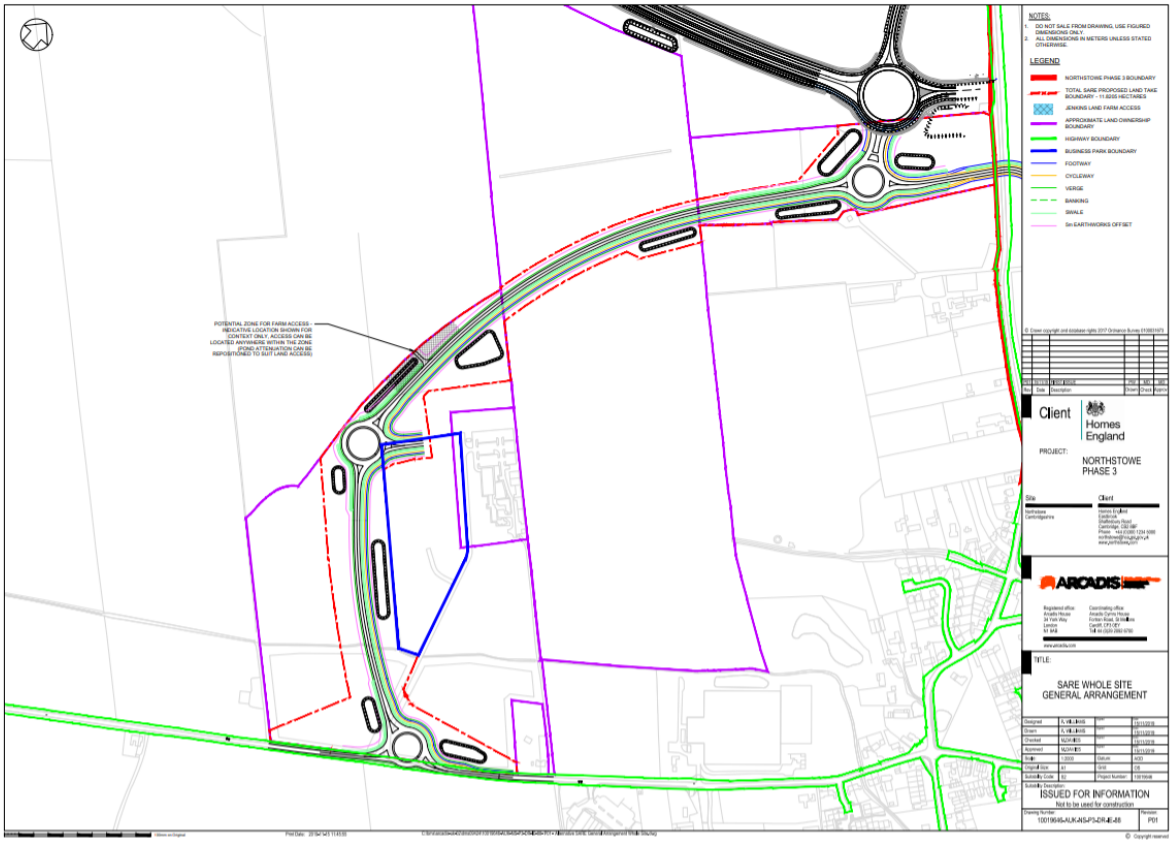
At this stage, outline planning approval is sought for the development including the SARE within the area defined in the Movement Parameter Plan as shown in the Figure 1 below.

Figure 1 – Extract from Movement Parameter Plan



An indicative design of the SARE is included as part of the Transport Assessment (Appendix I) to inform the traffic assessment. This is shown in Figure 2 however it is important to remember that this is not a definite/fixed/detailed design.

Figure 2 – SARE General Arrangement Drawing



Key design considerations to arrive at the indicative alignment for the SARE include (but are not limited to):

- Design Standards
- Safe visibility for drivers (forwards and when emerging at junctions)
- Traffic Flows
- Wider aspirations (cycling, traffic calming etc)
- Approvals - Environment Agency (EA), South Cambridgeshire District Council (SCDC) Planning and Cambridgeshire County Council (CCC) Highways
- Landholdings and
- Buildability

A review of areas currently within Homes England control has been undertaken to understand opportunities for the SARE alignment in line with required design standards for future adoption. Delivering the SARE within areas of Homes England control makes sure that it can be delivered.

We have considered a wide range of options for alignments of the road within this area, with the aim of minimising impact on existing residents in Oakington. Therefore, whilst numerous routes have been considered to date, the alignment shown within the application was

considered to have the least impact on local residents (being west of most properties in the village) interacting with Dry Drayton Road further from Oakington than other possible options.

This alignment has been considered in line with Local Highway Design requirements (Cambridgeshire County Council Design Standards and requirements and where appropriate the relevant sections of the Design Manual for Roads and Bridges (DMRB)) and the traffic modelling analysis undertaken.

Design Speed - CCC and police requirements have been taken on board at this stage and discussions held to date have defined the design speed used. There may be opportunities to reduce speed limits on the proposed road link at the detailed design stage.

Interaction with Longstanton Road – how the road crosses the Bridleway link - will require detailed design of this area.

Cycle and pedestrian provision – there is a direct cycling link available to Oakington along Longstanton Road, but additional provision will be provided along the SARE, to tie into future provision along Dry Drayton Road which will be under discussion as part of the planning obligations for Phase 3A.

Linkage to the business park – the options have also needed to consider how to continue to provide access to the Business Park.

Junction with Dry Drayton Road

This is an outline application with all matters reserved, and therefore whilst a roundabout junction has been proposed at this stage, there may be potential to review this later subject to traffic flows and distribution coming out of the Monitor and Manage approach proposed.

Options for a priority T junction might include the SARE being a spur off Dry Drayton Road, or Dry Drayton Road continuing into Northstowe with the Oakington section becoming a spur.

Considerations for junction form have been informed by the transport modelling and traffic surveys undertaken along Dry Drayton Road. This suggests that the traffic flows to and from the SARE will represent only about a third of the future traffic on Dry Drayton Road. The main route will continue to be Dry Drayton Road to and from Oakington.

Continuation of traffic flows along Dry Drayton Road towards Oakington is still anticipated to be the priority route rather than traffic along the SARE. Therefore a change in directional priority is not considered appropriate at this stage, but may be considered further following the Monitor and Manage approach proposed.

Whilst multiple junction forms could work at this location, a roundabout has been proposed at this stage to provide a gateway feature into Oakington, slowing traffic speeds in line with the extended 40mph speed limit along Dry Drayton Road. The incorporation of a roundabout will provide a traffic calming feature that will show the change in highway context on approach to Oakington and allow the integration of a cycleway to the east to Oakington. We have looked at the potential for signalising a junction but this would be likely to make it harder for traffic to emerge and turn right to the Local Access Road and encourage traffic to

turn left to Oakington. All movements for traffic are incorporated including the left turn into Oakington from the SARE as this will allow access to and from Northstowe and its town centre for residents in Oakington. Signage considered as part of future detailed design could suggest the Oakington arm if for Oakington/local traffic only and the Dry Drayton arm heading west is for 'Cambridge and all other traffic'.

Homes England are in discussion regarding a financial commitment to provide a cycle link along Dry Drayton Road, connecting the SARE route from Northstowe to the new route alongside the Local Access Road to the north and south. The potential to extend this to Oakington will also be discussed, along with traffic calming measures in Oakington.

Environmental Impact

The route in the parameter plan has been assessed through the Environmental Impact Assessment including impact of noise, on air quality and landscape and trees.

Conclusions

The proposals for the SARE have been included in the Transport Assessment for Phase 3A, in order to cater for trips to and from Northstowe that have an origin or destination in north west Cambridge or to the south west of the A14.

The SARE route is indicative only, subject to detailed design, in order to identify the corridor affected.

The traffic assessment assumes as a worst case that a significant proportion of traffic could travel through Oakington and Cambridge Road through Girton, and proposals are included to improve the Oakington cross roads and the junction with New Road, as well as introduce traffic calming in Oakington to discourage trips. However, in reality the route via the A1307 will be much faster and a better route thus would be used by the majority of traffic.

There is significant potential to reduce the amount of traffic from Northstowe, with proposals for public transport and walking and cycling improvements, together with wider aspirations for the Cambridge Autonomous Metro. Thus, the need for the SARE would be monitored.