

A194/A184 White Mare Pool Emerging
pressures
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LARGE GREENBELT RELEASE AIMSUN TESTING



A194/A184 WHITE MARE POOL EMERGING PRESSURES

LARGE GREENBELT RELEASE – AIMSUN TESTING

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- 1.1.4 The purpose of this first phase of work is to identify whether the impacts of a potential Large Greenbelt Release site (sometimes called Land south of Fellgate) can be accommodated on the SRN. This development did not form part of the Local Plan tested in previous assessments.
- 1.1.5 This study will use the South Tyneside Infrastructure Study model and includes one of the proposed schemes at Jarrow tested in the A19/A185 Jarrow Junction Study. This model is referred to as STsHy18.

1.2 Model area

- 1.2.1 The study area covers the A19 from north of Tyne Tunnel to south of the Downhill Lane junction along the A19 and south of the Follingsby junction along the A194. It also includes the Arches (A185 and Newcastle Road) and the A184 from east of Testo's to west of White Mare Pool.

1.3 Approach

- 1.3.1 STsHy18 was developed using the Aimsun Next software package, version 8.3.1. The model was built as a hybrid subnetwork of the Tyne and Wear A19 model built in 2018. Most of the model is at mesoscopic level, with a microscopic

2. MODELLING METHODOLOGY

2.1 Future demand scenarios

2.1.1 2033 has been adopted for testing the Greenbelt Release as this was the last year tested for the South Tyneside Infrastructure Study which considered the impacts of the Local Plan.

2.1.2 The model scenarios are as follows:

2033 Do Minimum (Local Plan)

2033 Do Something (includes Local Plan and Large Greenbelt Release)

2.2 Infrastructure schemes

2.2.1 In addition to the schemes which formed part of the Local Plan testing (free flow tolls at the Tyne Tunnel northbound, and A19 northbound lane gain from Lindisfarne) two infrastructure schemes are included in this modelling work.

1. Option C scheme at Jarrow + Port of Tyne Dualling

2.2.2 The scheme includes:

Elongated northern A19/A185 roundabout

Link between the two A19/A185 roundabouts to be widened to two full lanes in each direction

Filter lane for A185 east traffic to enter A19 southbound

Signalisation of B1297 Priory Road/Church Bank junction

Port of Tyne dualling along the A185

2.2.3 The scheme was tested me

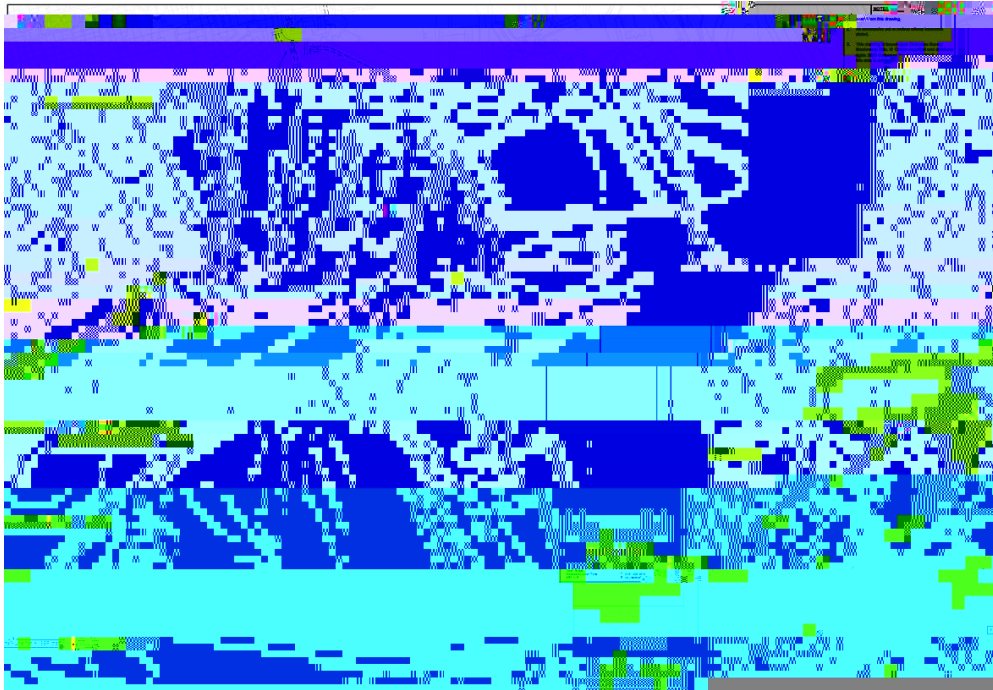


Figure 2.1 Option C scheme at Jarrow.

2. Elongated roundabout at White Mare Pool

- 2.2.4 An elongated roundabout at White Mare Pool with a new access to the Large Greenbelt Release site scheme was included in the Do Something scenario. The scheme is shown in Figure 2.2 below.

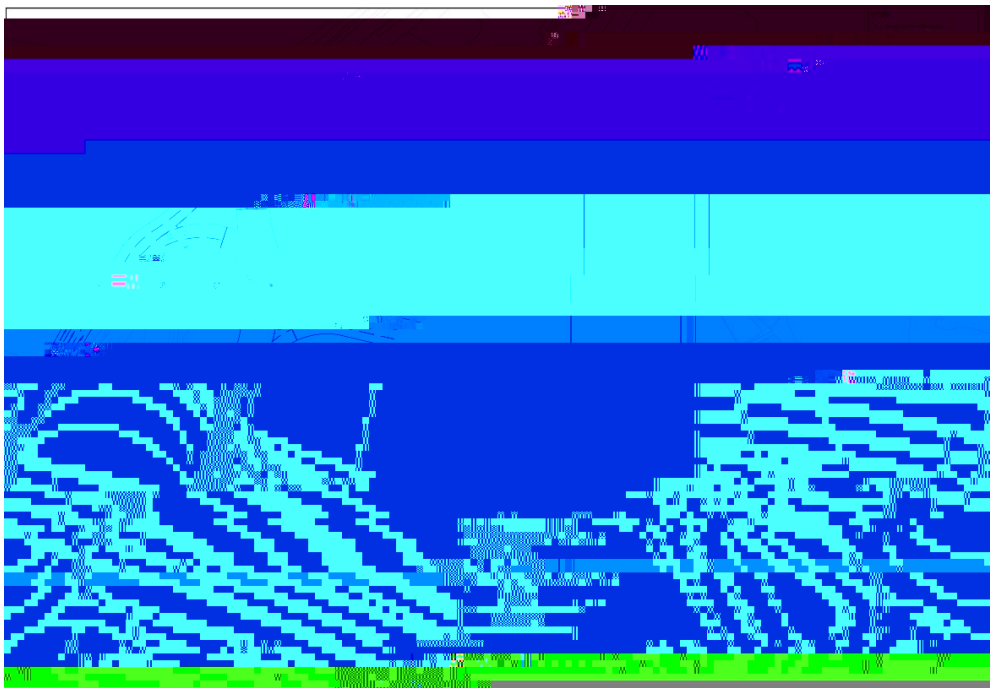


Figure 2.2 Elongated roundabout at White Mare Pool

- 2.2.5 It should be stressed that this scheme has not been discussed or agreed with Highways England. It therefore only seeks to demonstrate the principle of a scheme at this location.

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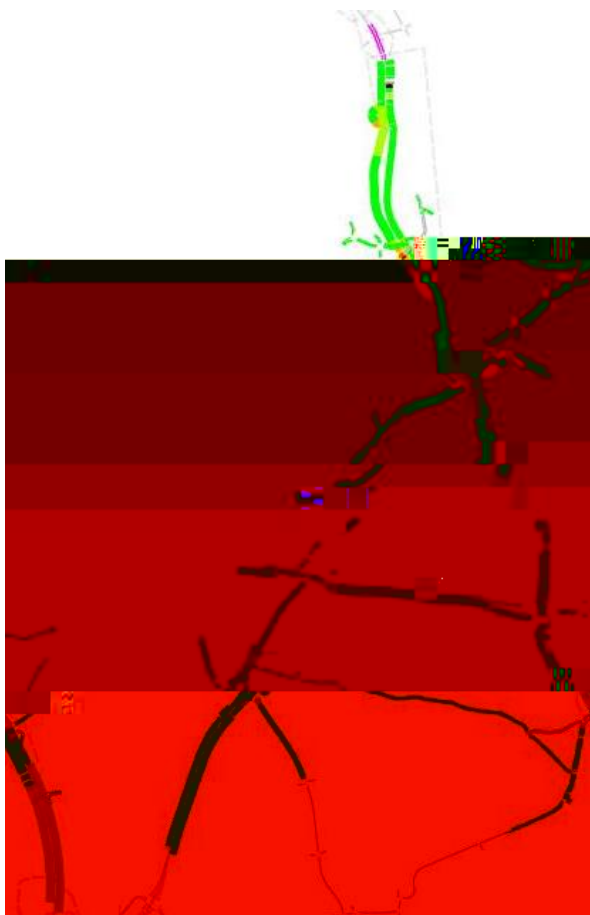


Figure 2.3 2033 Do Something 3000 houses, morning peak (07:45)

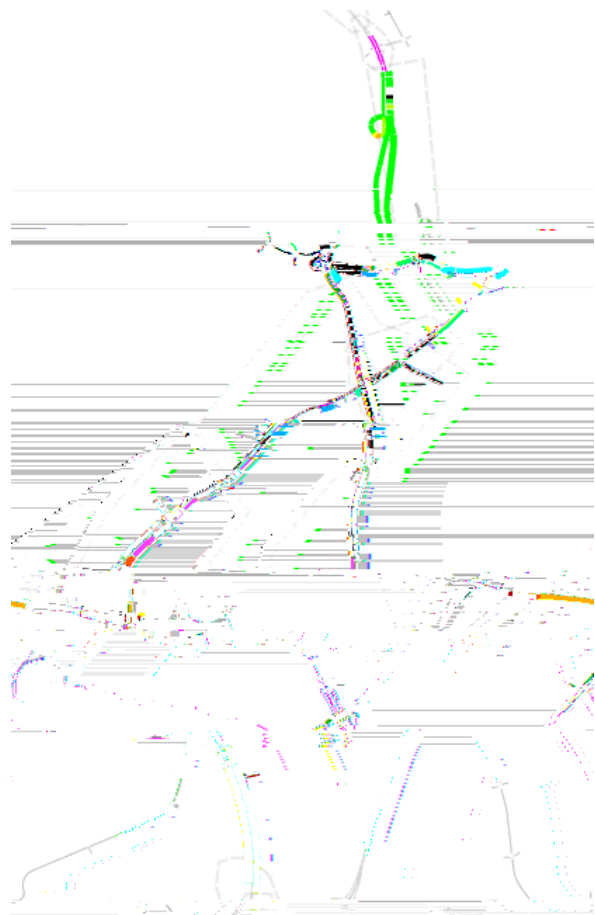


Figure 2.4 2033 Do Something 3000 houses, evening peak (18:00)

- 2.3.7 For the scenario reported in the remainder of this report, 50% of the Large Greenbelt Release demand was used. This could represent 1500 houses with the “typical” mode share, or a higher number of dwellings but a lower proportion of car trips.
- 2.3.8 A summary of the final (50%) matrix totals is provided in Table 1 below.

Table 1. Matrix totals (vehicles)

YEAR	TIME	2033 LOCAL PLAN	LARGE GREENBELT RELEASE DEVELOPMENT (AT 50%)	TOTAL
2033 Do Minimum	AM	80,049	0	80,049
	PM	88,511	0	88,511
2033 Do Something	AM	80,049	1,627	81,676
	PM	88,511	2,570	91,081

3. OUTPUTS

- 3.1.1 The model was set up to 40 iterations with Dynamic User Equilibrium approach and all the scenarios were converged. Results from each scenario have been compiled from the model and presented here. Results collected include:

Figure 3.2 2033 Do Minimum, morning peak 110.42 -92 8-92d-5()6-7:4!

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- 3.2.5 The elongated roundabout at White Mare Pool results in increased delays on the south SRN arm, and some improvements on the north (local road) arm. It is likely that Highways England will require redistribution of these queues and this can be undertaken using the signals which form part of the scheme.
- 3.2.6 There are also widening schemes on the south and east arms identified as part of the Infrastructure Study which have not been included in the current tests, but will be included in later assessments.

3.3 Journey time

- 3.3.1 This section provides a summary of the journey times along the A19 northbound for the Do Minimum and Do Something scenarios in both morning and evening period, see Table 2 below. Queues are reported for Lindisfarne to Jarrow, since this is the section of the A19 with the most significant impacts.

Table 2. A19 Journey times, Lindisfarne to Jarrow (mins:secs)

YEAR	TIME	TO MAINLINE	TO JUNCTION
2033 Do Minimum	AM	4:33	1:42
	PM	1:33	2:48
2033 Do Something	AM	5:21	1:37
	PM	1:33	3:48

Figure 3.6 A19 journey times, Lindisfarne to Jarrow morning period

3.3.2

3.3.3 There are no significant delays on the slip road in the morning period.

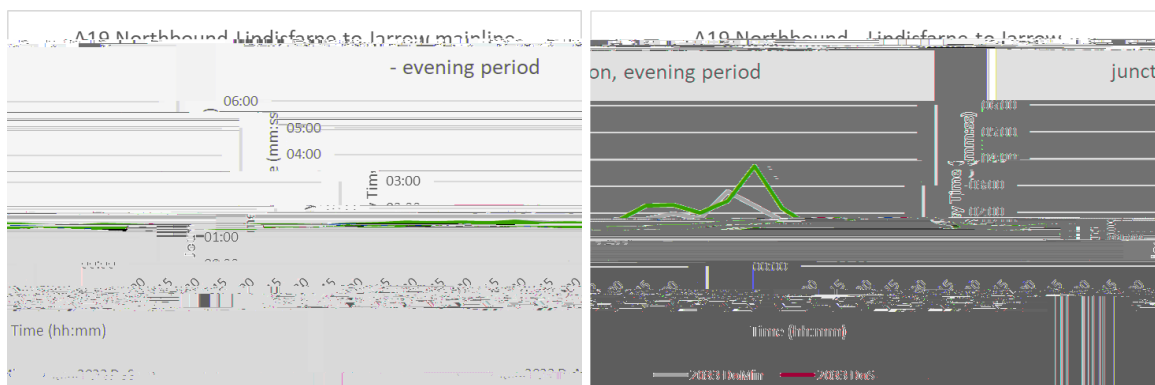


Figure 3.7 A19 journey times, Lindisfarne to Jarrow evening period

- 3.3.4 In the evening period the mainline operates satisfactorily with no noticeable difference between Do Minimum and Do Something.
- 3.3.5 There are some delays on the A19 northbound to Jarrow junction, which are marginally worse with the Greenbelt Release traffic included. These can be seen on the delay plans as queues on the slip road.

4. SUMMARY

- 4.1.1 This technical note has outlined the impact of the Large Greenbelt Release on the SRN within the South Tyneside subnetwork model in 2033.
- 4.1.2 The study includes two scenarios in the morning and in the evening periods:
 - 2033 Do Minimum (includes Local Plan)
 - 2033 Do Something (includes Local Plan + Large Greenbelt Release development)
- 4.1.1 The initial model test included the full development content of the Greenbelt Release, with a mode share identified as typical for this area: this was considered to be 3000 g000003redel in 2033.

