

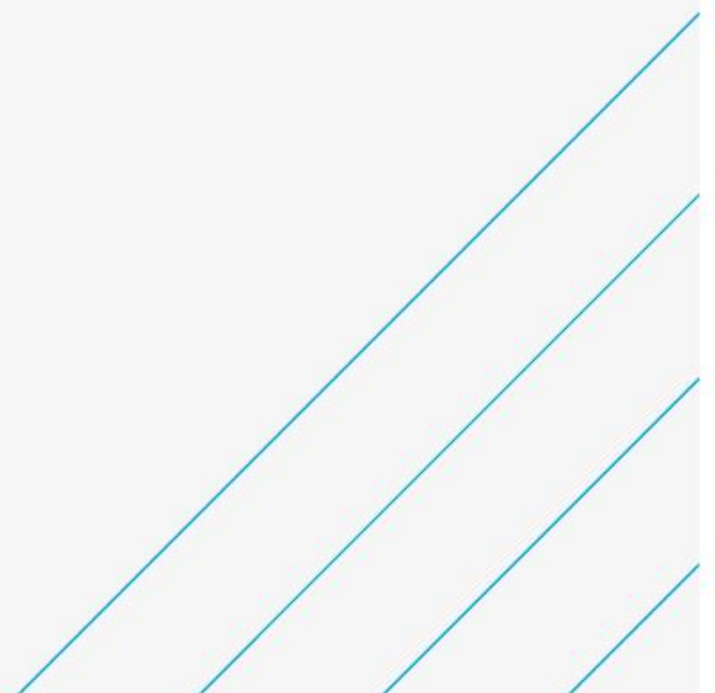
Fareham Local Plan

Strategic Transport Assessment

Fareham Borough Council

18 September 2020

5190502 Fareham Local Plan STA



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Client signoff

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for reconfiguration of M27 Junction 10. This equates to 1,160 residential units within the Plan period. Further details of the sensitivity test results are provided in Chapter 10 of this STA.

Scenario 3: 2036 Do Something Model

- 6.22. The Do Something scenario builds on the Do Minimum scenario with the addition of identified potential mitigation measures following the assessment of significant and severe impacts from the proposed Local Plan allocations. The highway network for the Do Something scenario includes changes at five junctions within Fareham Borough in order to mitigate against the predicted impacts of the Fareham Local Plan. More information on the location and type of mitigation and relevant preliminary design drawings for each of the schemes can be found Chapter 11, with the modelling results in Chapter 12. These potential mitigation measures represent the worst-case solution to resolving highway issues, with the preferred approach to start with public transport and active modes. In addition, the mitigation seeks to address the impact of the Local Plan developments only, as opposed to impacts resulting from background growth in traffic over the Local Plan period.
- 6.23. There are no changes to the public transport network compared to the Do-minimum scenarios, as there were no committed public transport schemes identified at the time of the assessments specifically aimed at mitigating impacts of the Local Plan. Details of the future SEHRT scheme were not available for inclusion in the model runs.

Assessment methodology for projected highway impacts

- 6.24. A comparative assessment of the results between the 2036 Baseline and the 2036 Do Minimum scenarios has been undertaken (in Chapter 8) to isolate, as far as possible, the cumulative impact of the proposed Local Plan allocations and to identify any requirements for mitigation. The 2036 Do Minimum scenarios have also been compared with the 2036 Do Something to understand the effectiveness of potential mitigation measures and what residual impacts would remain following their introduction.
- 6.25. In the first instance, a comparison of the differences between the Baseline and Do Minimum scenarios was used to identify junctions and corridors within the Borough where future schemes may be required to mitigate the impact of the proposed Fareham Local Plan developments and thereby, enable its delivery.
- 6.26. Highways impacts are measured in modelling in terms of Passenger Car Units or PCUs. A PCU is a measure of the effect that each type of vehicle has on highway capacity. For example, a car has a PCU value 1. A Heavy Commercial Vehicle has a PCU value of up to 2.4, as typically these vehicles have an impact on capacity equivalent to more than two cars.
- 6.27. Capacity hotspots are identified by the RFC which is the ratio of traffic flow (or volume) to available capacity (V/C) on each junction approach, presented as a percentage. A value of 85% is normally taken as the practical capacity value for design purposes. Junctions with a V/C of less than 85% on their approaches are said to be operating 'within capacity', with no or limited queues and delays. If the V/C is near or in excess of 85% then the junction is likely to be subject to intermittent queuing and delays and is said to be operating 'close to or at capacity'. A value greater than 100% means that the junction is 'over capacity' and significant queues and delays are likely to occur.
- 6.28. The key SRTM outputs assessed are:
- Key network statistics for the full SRTM Core Model Area. These have been summarised, including vehicle hours, vehicle kilometres, and average speed. Due to the size of the SRTM, the results for the Fareham Borough in isolation have also been provided;
 - Changes in traffic flow in Passenger Car Units (PCUs) between Baseline and Do Minimum scenarios;
 - Changes in vehicle delays and journey times between Baseline and Do Minimum scenarios in seconds per PCU; and

- Capacity hotspots have been identified by reviewing junction approaches based on the ratio of flow to capacity (RFC) on each approach – hence identifying links with a high RFC is a proxy for identifying junctions with capacity issues.
- 6.29. The operational capacity on all links on the approaches to junctions within Fareham Borough, and in the immediate vicinity of Fareham Borough boundaries has been assessed to identify potential congestion hotspots as a result of proposed Local Plan allocations.
- 6.30. The change in RFC and delay between the scenarios has been calculated to identify locations where the forecast junction performance deterioration is most pronounced. The following criteria has been applied to identify junctions where operational performance worsens either significantly or severely (these criteria have been used on similar SRTM commissions in agreement with HCC and HE):
- “significant” increase in RFC is where the RFC is greater than 85% and has increased by more than 5% on any approach arm; and
 - “severe” increase in RFC is where the RFC is greater than 95% and has increased by more than 10%, or where delay is greater than 120 seconds and has increased by more than 60 seconds per vehicle on any approach arm.
- 6.31. Once the locations where the Local Plan growth is forecast to have a significant or severe impact on highway capacity were identified from a comparison between the SRTM Baseline and Do Minimum scenarios, potential mitigation measures were considered to address them. Concept designs have been prepared for the affected junctions and links. These have been completed to a level sufficient to enable more detailed junction capacity modelling to be undertaken and to allow cost estimates for the works to be prepared.
- 6.32. It should be noted that this exercise has been undertaken to demonstrate that the adverse traffic impacts due to the proposed Local Plan growth is capable of being satisfactorily mitigated and, thus the Local Plan is deliverable. The designs are indicative and should not be taken to represent a definitive ‘solution’ for the locality. As above, to allow for modal shift away from driving, the preferred mitigation approach is encouraging active modes, public transport, and reducing the need to travel as evidenced in Local Plan policy. The exact nature and design of any schemes in each of these locations can only be determined at the planning application stage and would be progressed through a detailed Transport Assessment submitted in support of each.
- 6.33. A more detailed capacity assessment of the identified potential mitigation measures was undertaken using standard, local junction modelling packages (Junctions 9 and LinSig). This was done to evaluate their effectiveness and to allow the refinement of the proposed works with the objectives of achieving the greatest level of congestion relief within the existing constraints, such as highway boundaries. Consideration was also given to limiting any negative impacts to the walking and cycling networks, as well as the affordability and deliverability of all measures proposed.
- 6.34. Once mitigation measures were identified and local junction models run, these measures were introduced in the SRTM to provide the model results for the Do Something Scenario.
- 6.35. Chapters 8 to 12 of the STA summarise the results of the SRTM model runs and detail the measures tested to mitigate the incremental traffic impacts of the proposed Local Plan.

8. Baseline Modelling Results

2015 Base versus 2036 Scenario 1 Baseline

Highway Network Performance

- 8.1. This section summarises the highway network statistics for the AM and PM peak periods for the 2015 Base and 2036 Scenario 1 Baseline, before any Local Plan allocations are tested in Scenario 2. These results are those predicted to happen by 2036 even without additional growth proposed in the emerging Local Plan. Full details of all model outputs can be found in the Systra SRTM Modelling Report.
- 8.2. Total motor vehicle hours increase by 30% in Fareham during both the AM and PM peak periods between the two scenarios. Total motor vehicle kilometres increase by smaller volumes, with a 22% increase in both the AM and PM peak periods.
- 8.3. The average speed for motor vehicles in the Borough decreases by 7% in the AM and PM peak periods. The impact seen in Fareham is comparable with that seen in the SRTM Core Model Area as a whole and is consistent with a network containing higher traffic volumes and increasing delay. Note Fareham Borough is within the Core Fully Modelled Area (the most detailed region of the model) as seen in Figure 6-1.

Traffic Flow Difference

- 8.4. This section describes the change in traffic flow, in passenger car units (PCUs), for AM and PM peak hours respectively between the 2036 Scenario 1 Baseline and 2015 Base scenarios. The geographic extent of the figures is Borough wide to give an overview of the full Core Model Area.
- 8.5. The M27 sees the greatest forecast flow increase during both periods (approximately 1,900 additional PCUs in both directions during the AM peak, with 1,700 westbound and 1,650 eastbound during the PM peak). This is followed by the A27 between M27 Junction 9 and Stubbington Bypass and on the Bypass itself. As expected, the new Stubbington Bypass is forecast to attract traffic away from the existing road network which predominantly routes through Stubbington village. The increase in flows forecast on Stubbington Bypass exceeds 1,100 PCUs in each direction during both the AM and PM peaks.
- 8.6. Development traffic at Welborne is impacting to the north of the M27 Junction 10. It is forecast that development traffic will contribute to a reduction in flows travelling adjacent to Welborne via A32 Wickham Road and may affect the wider Borough flow. This is predominantly due to the network configuration within Welborne linking to the west facing slips at M27 Junction 10.

Highway Delays

- 8.7. The section outlines the forecast change in link delay, in seconds, per PCU, for the AM and PM peak hours respectively between the 2036 Scenario 1 Baseline and 2015 Base.
- 8.8. The changes in delay are most prominent in this comparison due to the additional traffic forecast in 2036 when compared to 2015. As such, several junctions both within Fareham and model wide are forecast to experience an increase in delay.
- 8.9. It is forecast that there will be changes in delays at M27 Junction 11 in both the AM and PM periods, with a mixture of increases and reductions at approach arms to the junction. Forecast traffic flow (and amended traffic signal timings) at this location not only account for general growth between 2015 and 2036 but also redistribution of traffic due to the provision of west facing slips at M27 Junction 10.
- 8.10. The change in delay during the AM peak shows a neutral impact along the length of the A27 between the M27 Junction 9 and the A32 with a mixture of increases and decreases.
- 8.11. The location with the biggest increase in delay is on Bridge Street to the east of Titchfield and is due to the increases in traffic using the new Stubbington Bypass in this area. During the AM peak the

westbound delay is forecast to be 101 seconds with a 50 second delay eastbound. During the PM peak the forecast delays are smaller at 24 seconds westbound and 38 seconds eastbound.

Capacity Hotspots

- 8.12. The section includes junctions forecast to have an RFC greater than 85% in the 2015 Base and 2036 Scenario 1 Baseline respectively in any time period.
- 8.13. As detailed in Chapter 5.29, the following criteria has been applied to identify junctions where operational performance worsens either significantly or severely:
- “significant” increase in RFC is where the RFC is greater than 85% and has increased by more than 5% on any approach arm; and
 - “severe” increase in RFC is where the RFC is greater than 95% and has increased by more than 10%, or where delay is greater than 120 seconds and has increased by more than 60 seconds per vehicle on any approach arm.
- 8.14. The above criteria have been applied to identify those junctions within Fareham Borough most impacted by highway growth between the two scenarios. This does not represent a list of sites where mitigation should be considered as part of delivery of the Local Plan, but sites that are likely to require study work, and potential interventions regardless of the Fareham Local Plan growth.
- 8.15. Hampshire County Council’s standard practices of identifying and addressing transport issues are included in Hampshire Local Transport Plan⁴⁰ and outlined below:
- **The Capital Programme** for integrated transport details how the block funding provided by Government to local authorities to support the development of small transport improvement schemes is to be spent. The programme includes funding for a number of major schemes that have secured funding through the Local Pinch Point Programme and LEP controlled Growing Places funds.
 - **The Revenue Programme** for strategic transport is derived from the analysis of the problems and challenges facing Hampshire. Revenue expenditure is therefore used to fund scheme development, as well as transport studies and feasibility, both across Hampshire and through Transport for South Hampshire, to ensure that this is achieved.
- 8.16. In total of 23 junctions meet the “severe” change criteria and 16 are classified as “significant” as summarised in Paragraph 8.12 and Figure 8-1.

⁴⁰ <https://www.hants.gov.uk/transport/strategies/transportstrategies#step-2>