

## **Report to the Transport for South Hampshire Joint Committee**

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**Subject:** M27 Corridor Studies

### **Purpose of the Report**

To present the findings of:

- (i) the M27 Corridor Junctions 5–12 Transport Study, as an interim basis for strategic transport planning prior to the completion of the evidence base during 2011; and
- (ii) the three M27 Corridor Parallel Studies which identify access strategies for North/North East Hedge End Strategic Development Area (SDA), Whiteley Development; and North Fareham SDA.

### **Recommendations**

**That the Joint Committee:**

- 1. Notes the findings of the M27 Corridor Junctions 5–12 Transport Study and the M27 Parallel Studies.**
- 2. Adopts the conclusions of the M27 Corridor Junctions 5–12 Transport Study as a basis for strategic transport decisions prior to the completion of the evidence base during 2011 and in order to deliver the growth agenda.**
- 3. Agrees to formally advise Eastleigh, Fareham and Gosport Borough Councils and Winchester and Southampton City Councils of the findings of the M27 Studies in order that the access strategies identified for the North/North East Hedge End Strategic Development Area, North Whiteley Development and North Fareham Strategic Development Area can be used to inform work for the respective Core Strategy and Local Development Frameworks.**

## **M27 Corridor Junctions 5 to 12 Transport Study**

### **Introduction**

1. The M27 Corridor Junctions 5–12 Transport Study was commissioned in October 2009 to identify the cumulative impact of planned South East Plan (SEP) development upon the M27 Corridor and to help identify an interim strategic transport plan for the South Hampshire sub-region to 2026. The two strategic development sites at North and North East Hedge End and North Fareham and also large development at North Whiteley form a key focus within the study, with proposed development at Tipner being taken into account. The study is based upon a high level spreadsheet analysis which takes into account trip generation and distribution, focusing upon the M27 Corridor and provides interim findings prior to the completion of the more detailed evidence base and modelling work during 2011. (Detailed interventions, junction capacity analysis, costings and engineering feasibility do not form part of the M27 Corridor Study.) The study is necessary to help inform the progression of Local Development Framework (LDF) Core Strategy work and to meet approaching deadlines. It is also required by the Highways Authority (HA) in order to assist their response to the LDFs and key sites. Local Planning Authorities have been involved in the development of the study brief and have provided land use planning data to inform the work.

### **Approach**

2. Two land use planning scenarios were tested in the study, namely the South East Plan allocated development and also a second option with reduced development numbers. The second option was supplied by the Local Planning Authorities and is one which they consider reflects a more likely way forward.
3. Trip generation from all of the planned development was identified and assessed in terms of a reduce and manage approach, considering the proportion of trips which could be effectively self contained within the key development sites and the immediate surrounding area as well as the proportion of trips which could be reduced through smarter choice, walk and cycle and public transport modes. Morning and evening peak periods together with an all day period were analysed for a 2008 base year and 2026 forecast year.
4. The study distributed the residual trips onto the local network with a primary focus upon trips from the three key development sites onto the M27 Corridor. North/North East Hedge End SDA, North Whiteley and North Fareham SDA were analysed separately and the impacts on the M27 were then accumulated. Importantly the study does not include any future potential re-routing of existing traffic or public transport trips on the network or potential service improvements.

5. A number of different strategies and highway interventions were tested including the implementation or not of improvements to the M27 at Junction 8, Botley Bypass, improvements to the M27 Junction 10, a realigned A32 link road to the M27 Junction 11, managed motorways and demand management. The interventions were assessed only in relation to demand associated with development-related trips, whereas in reality interventions are designed to deal with a wide range of problems and generate other required outcomes; A total of thirteen combination tests were undertaken – all at 2026.

## Key Findings

6. The 2008 base case scenario shows that key sections of the M27 are currently congested at peak periods but throughout most of the day the M27 runs effectively. By 2026, the planned development in the area, will considerably add to the demand for car travel on the M27, even with the reduced land use allocations, reduce and manage measures and appropriate ameliorating interventions, sections of M27 will increase to severe congestion throughout much of the day. Some capacity remains in off peak periods but these periods will be shorter as the peak periods expand.
7. Figures S-1 to S-5 in Appendix 1, show various key scenarios and associated impacts for the AM Peak, Figure S-1 represents the 2008 base. Figure S-2 shows the impacts in 2026 of all the planned development but no reduce and manage measures or interventions have been introduced. The result is that much of the motorway is congested. Figure S-3 shows the same as S-2 but with reduce and manage measures in place which ameliorate the impacts to some extent. Figure S-4 shows a scenario in which all the planned development is in place, with reduce and manage measures and a number of interventions are in place including improved access from the N/NE Hedge End SDA via Junction 8 and Junction 10 becomes an all-moves junction. Figure S-5 shows a scenario with all the planned development but with housing numbers reduced from 10,000 to 7,500 at North Fareham, with reduce and manage measures in place and interventions include improved access at Junction 8, and a realigned A32 link road to Junction 11.
8. **Reduced Land-Use Planning Scenarios** - The results of the reduced land-use planning scenarios show a corresponding lower level of trips and lower levels of development traffic on the M27. However, the reductions are relatively minor compared to overall link flows and are insufficient to substantially avoid the levels of overloading predicted.
9. **Self-containment** - The study assumes that 25% of total trips from the key development sites are contained within the development sites, with a further 20% of trips remaining in the immediate area. (Whiteley is an exception having no self containment within the site as it is smaller and only has housing.) As the trips generated by the key developments are

relatively small compared with the predicted trips generated by the overall allocated developments and also with existing trips on the network, the levels of self-containment would have to increase to levels not yet attained in the UK in order to make a significant difference in terms of reducing impact upon the M27.

10. **Reduce and manage measures/Smarter Choices** - All tests include the provision of improved access to rail stations and show use of rail by development generated trips, however the increases in rail trips assumed are relatively low and hence have a minimal effect in reducing the number of car trips as a result of transfer from car to rail. The model shows slightly greater use of rail by development at North Whiteley as it has access to both Botley and Swanwick Stations, followed by North Fareham SDA trips as Fareham station provides a local rail and public transport hub. Rail improvements including the provision of Eastleigh Chord and line enhancement would improve journey options across a wide area as congestion worsens, however these proposals were considered beyond the timescale of this study. All tests include provision of improved access to bus services travelling to the major employment and retail centres and show the use of bus by development-generated trips but at lower levels than rail. On the whole reduce and manage measures produce a small but worthwhile reduction in car traffic though a considerable on-going effort will be needed to deliver them. Further investigation will be needed in order to provide clarity regarding what is actually achievable in terms of reduce and manage measures and how this can be maximised through appropriate LDF policy direction which is essential to help reinforce and deliver these aspects.
11. Demand management on the motorway in the form of road user charging could secure an additional 10% reduction in peak hour trips, reducing severe congestion in places however changes in policy direction would be needed to secure this. Managed Motorways (such as active traffic management schemes) also have a positive impact on the M27 flows reducing many sections from severe to moderate congestion. These reductions in car travel translate into a higher take-up of bus and rail.

#### **North and North East Hedge End SDA**

12. New or improved existing highway access to Junction 8 is needed to minimise additional use of Junction 7, reduce impacts on Hedge End town centre and to accord with Southampton City Council proposals to prioritise the A3024 Eastern Access into Southampton.
13. Public transport will benefit from improvements in access to Junction 8 and links to the A3024 Eastern Access to Southampton.
14. Some Southampton-based car trips will continue to use Junction 7/Charles Watts Way.

15. Movements to/from the development through Botley towards the north and Whiteley are not relatively significant.
16. M27 movements are predominantly across the M27 towards Southampton and eastbound on the M27.
17. These findings are slightly different from those in earlier studies in that they place more emphasis on Junction 8 for both highway and public transport access.

### **North Whiteley**

18. The study progressed on the assumption that a form of Whiteley Way will be constructed in all options. It is assumed that the nature of Whiteley Way will not provide a direct route through the development.
19. Most car trips cross the M27 into Segensworth and beyond.
20. M27 trips are approximately evenly split between east and west bound.
21. Car trips heading north to and from Botley and beyond to Fair Oak and Winchester are not significant in relation to other movements.

### **North Fareham**

22. Two alternative options (and slight variants) were tested in relation to connecting the SDA to the M27: a realigned A32 link road connecting to the M27 junction 11 or modifications to Junction 10 to create all moves.
23. A realigned A32 would provide a link road between the proposed employment area adjacent to Junction 11 and the main residential areas. It would also provide access between the SDA and the motorway via Junction 11, and A27 link towards Gosport and the south; eastbound trips from the SDA would continue to use Junction 10 unless Junction 10 is restricted to Bus Rapid Transit/High Occupancy Vehicle traffic only, some would also cross Junction 10 into Fareham on Wickham Road.
24. Adding west-facing slips to Junction 10 would provide two all-moves junctions (Junctions 10 and 11) and each would facilitate both east and west bound movement. Most development traffic would use A32 Wickham Road and Junction 10 calling into question the need to realign the A32.
25. In total more development traffic would travel into Fareham (A32 Wickham Road and A27 Eastern Way) with the realigned A32 link road option, than with the all-moves Junction 10.

26. With two all-moves junctions there would be reductions in other traffic using Junction 11 west-facing slips (due to general network reassignments but not measured in this study) and greater resilience in the operation of the motorway and connecting roads.
27. Currently Junction 11 is heavily used and the extent to which it could accommodate traffic from the SDA without unacceptable delays and safety issues was considered further in the parallel studies. Should further work demonstrate that Junction 11 cannot accommodate significant increases in traffic then an all-moves Junction 10 may be required.
28. The intention that the SDA should be an eco-town, has such large implications for the nature and arrangement of access to and from the development which are not investigated in this study, that a review of access options will be required once a clear way forward has been identified by Fareham Borough Council. The scale of reduction in terms of car trips generated and attracted will require radical measures on an unprecedented level. Interventions will need to be focused upon non-car modes.

### **Botley Bypass**

29. The implications of the provision of a Botley Bypass was tested in relation to the North/North East Hedge End SDA and North Whiteley sites, both independently and in combination. The results show that there would not be sufficient 'development-related' traffic in the general Botley direction to provide a significant development-related justification for a Botley Bypass (noting the limitation of this study with respect to the re-routing of general traffic).

### **M27 Parallel Studies**

#### **Introduction**

30. Three M27 Parallel Studies were commenced in December 2009 and provide a linked suite of studies focusing upon the specific access issues for North and North East Hedge End SDA, North Fareham SDA and Whiteley. A separate Western Corridor Access Study commissioned by Portsmouth City Council relates to access associated with proposed development at Tipner (the trips generated by development at Tipner and all other SEP development were taken into account as part of the wider study.) The three parallel studies are based upon the trip generation and distributions identified in the wider M27 corridor study, after reduce and manage measures have been taken into account, that is, focusing upon residual trips. Detailed interventions, junction capacity analysis, land use planning issues, environmental issues, costings and engineering feasibility form part of the parallel studies. Local Planning Authorities have been fully involved in the development and progression of the study which has been

progressed as a multi-disciplinary matrix analysis taking into account a comprehensive list of potential interventions and filtering this into three packages of interventions to be used to inform the access strategies for these key sites.

### **Approach**

31. The approach for the Parallel Studies is based upon the outputs from the M27 Corridor Study after reduce and manage measures have been implemented and considers physical interventions only.
32. An initial stakeholder workshop was held to identify a fully inclusive range of potential interventions which could subsequently be analysed on an individual basis to help identify packaged multi-modal access strategies for the SDAs and Whiteley. The workshop involved officers from the respective Local Planning Authorities and also representatives from the developer consortiums who had previously considered potential access strategies for the development sites.
33. The full list of interventions was tabulated into a matrix format and assessment of each was undertaken in terms of various criteria including: traffic impact/capacity (compatibility with the findings of the M27 corridor Study); engineering feasibility; land-use planning, environment; land ownership; HA issues; outline engineering cost and policy compatibility. The assessment of each intervention was undertaken independently by respective experts in each subject area for each site and detailed assessment matrices were produced for each criteria which then fed into a summary matrix.
34. A Summary Workshop was held to collate feedback from all the individual aspects of the analysis and to consider the entire picture for each intervention and then to jointly agree which interventions should be taken forward to form part of the packaged access strategies for each site.

### **Key Findings**

35. After evaluation of the comprehensive list of interventions, the following outputs have been jointly identified as multi-modal, packaged access strategies for the three key sites which should be considered for implementation after reduce and manage and manage measures have been employed. Implementation is grouped into four categories: A: Interventions serving the site, B: interventions which are on site and will be investigated further as part of the master-planning process; C: linked interventions which may also benefit the site; and D: longer term interventions.

## **North and North East Hedge End SDA Access Strategy**

### **A: Interventions serving the SDA**

#### **Highway:**

- (i) Woodhouse Lane, Kings Copse Avenue, Heath House Lane online improvements, plus short section of new link at Heath House Lane (southern section) to M27 Junction 8 avoiding Dodwell Lane junction;
- (ii) as above but no new link and with improvements to Dodwell Lane junction. (This option is a phased or interim intervention);
- (iii) M27 junction 8 improvement (signalisation/free flow left turn lanes);
- (iv) Windhover roundabout/Bert Betts Way improvements;
- (v) B3342 between M27 Junction 7 and SDA - measures to manage through traffic;
- (vi) A334 through Hedge End to SDA - measures to manage through traffic;

#### **Bus:**

- (i) Botley Road - re-opening for public transport vehicles to avoid M27 Junction 8 (potential route to A3024 via Hedge End village centre);
- (ii) M27 Junction 8 bus priority; (alternative option if above not pursued);
- (iii) A3024 to Southampton plus Northern Railway Bridge, bus HOV lane;
- (iv) B3342 Bubb Lane, Shamblehurst Lane, Woodhouse Lane, Winchester Street bus priority measures including limiting use of existing railway bridge to bus, cycle, walk.

#### **Rail:**

- (i) Hedge End Station - improved station facilities and car parking.

#### **Pedestrian and Cycle:**

- (i) Burnetts Lane; B3342 Bubb Lane; Shamblehurst Lane, Woodhouse Lane; Winchester Street pedestrian and cycle improvements;
- (ii) consideration of improved pedestrian and cycle routes north east and west as part of a wider green infrastructure strategy.

### **B: Interventions which are on site and will be investigated further as part of the master-planning process:**

#### **Highway:**

- (i) Locke Road minor road connection to SDA spine road.

#### **Bus:**

- (i) Locke Road bus only connection to SDA spine road bus only link.

## **C: Linked interventions**

### **Bus:**

- (i) Windhover roundabout – Park and Ride subject to further investigation;
- (ii) M27 Junction 8 – Park and Ride subject to further investigation.

## **D: Longer term interventions**

### **Rail:**

- (i) Fareham to Eastleigh track doubling and provision of Eastleigh Chord – longer term subject to outcome from Rail Utilisation Strategy by Network Rail.

### **Pedestrian/Cycle:**

- (i) Hedge End to Eastleigh Riverside alongside railway line - pedestrian/cycle route - longer term linked to development at Riverside.

## **North Whiteley Development Access Strategy**

Further detailed traffic and engineering feasibility work is being undertaken by the developer consortium to ensure the package identified below is robust. This will not be completed in time to feed into the Study Report.

## **A: Interventions serving the development**

### **Highway:**

- (i) Segensworth roundabout, M27 Junction 9, Whiteley Way roundabout – junction optimisation and corridor improvements;
- (ii) Yew Tree Drive – opening for all traffic – to be reviewed following trial opening and pending further discussions with Fareham Borough Council;
- (iii) Rookery Avenue completion subject to further investigation and review by Fareham Borough Council;
- (iii) A3051 Botley Road between North Whiteley and A334 Station Hill - on-line improvement and traffic management measures to manage through traffic;
- (iv) A3051 Botley Road west/A334 Station Hill junction improvements to manage through traffic;
- (v) Botley - traffic management measures to manage through traffic; (linked to Hedge End SDA);

### **Bus:**

- (i) Segensworth roundabout, M27 Junction 9, Whiteley Way roundabout - optimisation taking into account potential for bus priority.

### **Pedestrian and Cycle:**

- (i) A3051 North Whiteley to Botley station – cycle improvements;
- (ii) M27 underpass at Segensworth to Whiteley – to be improved as pedestrian/cycle link (currently being investigated by Hampshire County Council linked to redevelopment of land to the south);
- (iii) if the above is not feasible an alternative option will be considered to provide a pedestrian/cycle route alongside Whiteley Way, Junction 9 and A3051 Southampton Road.

### **B: Interventions which are on site and will be investigated further as part of the master-planning process:**

#### **Highway:**

- (i) Whiteley Way – completion of on site road.

#### **Bus:**

- (i) Whiteley Way – completion of on site road to include bus priority measures.

### **D: Longer term interventions**

#### **Rail:**

- (i) Fareham to Eastleigh track doubling and provision of Eastleigh Chord.

#### **Fareham**

- 36. The access strategy for North Fareham SDA cannot be clearly defined prior to decisions by Fareham Borough Council regarding the inclusion or otherwise of the proposed business park site near to Junction 11, which will have a fundamental effect upon what interventions will be needed to serve the development and residual trip demand. The access strategy will also need to be completely reviewed to reflect the potential change to Eco town status and the need to seek largely unprecedented levels of self containment and reduction in trip generation. Until further research has been undertaken (beyond the original scope and timescale of this study) regarding the full implications of an Eco Town status, it is not possible to scope out exactly what interventions will be required.
- 37. In order to help inform interim planning decisions prior to a decision regarding Eco Town status and based on the assumption that the site is not being pursued as an Eco Town, two potential approaches have been identified focusing upon firstly an access strategy which includes a realigned A32 link road to M27 Junction 11; and secondly an access strategy which focuses upon improvements to M27 Junction 10. Both of these access strategies will need to fully take into account the limited

potential to improve capacity within the existing constraints at either M27 Junction 10 or 11 and will require agreement with the Highways Agency.

## **North Fareham SDA - A32 Realigned to M27 Junction 11 and employment near Junction 11 - Access Strategy**

### **A: Interventions serving the SDA**

#### **Highway:**

- (i) M27 Junction 11 improvements, dedicated left turn lanes on improved off slips, enhanced signal control;
- (ii) A32 new link/realignment to M27 Junction 11.

#### **Bus:**

- (i) SDA to Fareham town centre and railway station – BRT link via M27 junction 10;
- (ii) A32 new link/realignment to M27 Junction 11 including BRT priority to M27 junction 11;
- (iii) Funtley to SDA – new BRT link – fall back position if M27 junction 10 option is not pursued.

#### **Pedestrian and Cycle:**

- (i) M27 underpass Kneller Court, Wickham Road, North Farm, North Wallington – provision of pedestrian/cycle links;

### **B: Interventions which are on site and will be investigated further as part of the master-planning process:**

#### **Highway**

- (i) On site network to be determined as part of the master-planning process.

#### **Pedestrian and Cycle**

- (i) Pedestrian and cycle link to the M27 Junction 11 Business Park.

### **C: Linked interventions**

#### **Bus:**

- (i) Fareham Station Interchange – improvements linked to wider BRT.

## **D: Longer term interventions**

### **Rail:**

- (i) Fareham to Eastleigh track doubling and provision of Eastleigh Chord potential for a rail halt to be monitored and allowed for in the masterplanning process.

## **North Fareham SDA – M27 Junction 10 improvements with no employment site at Junction 11 – Access Strategy**

### **A: Interventions serving the SDA**

#### **Highway**

- (i) M27 Junction 10 addition of westbound slips for all traffic.

#### **Pedestrian and Cycle:**

- (i) M27 underpass Kneller Court, Wickham Road, North Farm, North Wallington – provision of pedestrian/cycle links.

#### **Bus:**

- (i) SDA to Fareham town centre and railway station – BRT link via M27 junction 10;
- (ii) A32 to Funtley to SDA – new BRT link – fall back position if M27 junction 10 option is not pursued.

### **C: Linked interventions**

#### **Bus:**

- (i) Fareham Station Interchange– improvements linked to BRT.

## **D: Longer term interventions**

### **Rail:**

- (i) Fareham to Eastleigh track doubling and provision of Eastleigh Chord.

### **Summary**

38. The findings of the M27 Corridor Study and Parallel Studies are interim findings which will need to be fully tested when the multi-modal evidence base work is completed. The findings provide interim strategic transport planning direction which is consistent with Delivering a Sustainable Transport System (DaSTS) and the LTP3 and which can be used to inform the Local Development Framework Core Strategy work.

Section 100 D - Local Government Act 1972 - background papers

**The following documents disclose facts or matters on which this report, or an important part of it, is based and has been relied upon to a material extent in the preparation of this report.**

NB the list excludes:

1. Published works.
2. Documents which disclose exempt or confidential information as defined in the Act.

TITLE	LOCATION
M27 Corridor Interim Study March 2010	Transport for South Hampshire

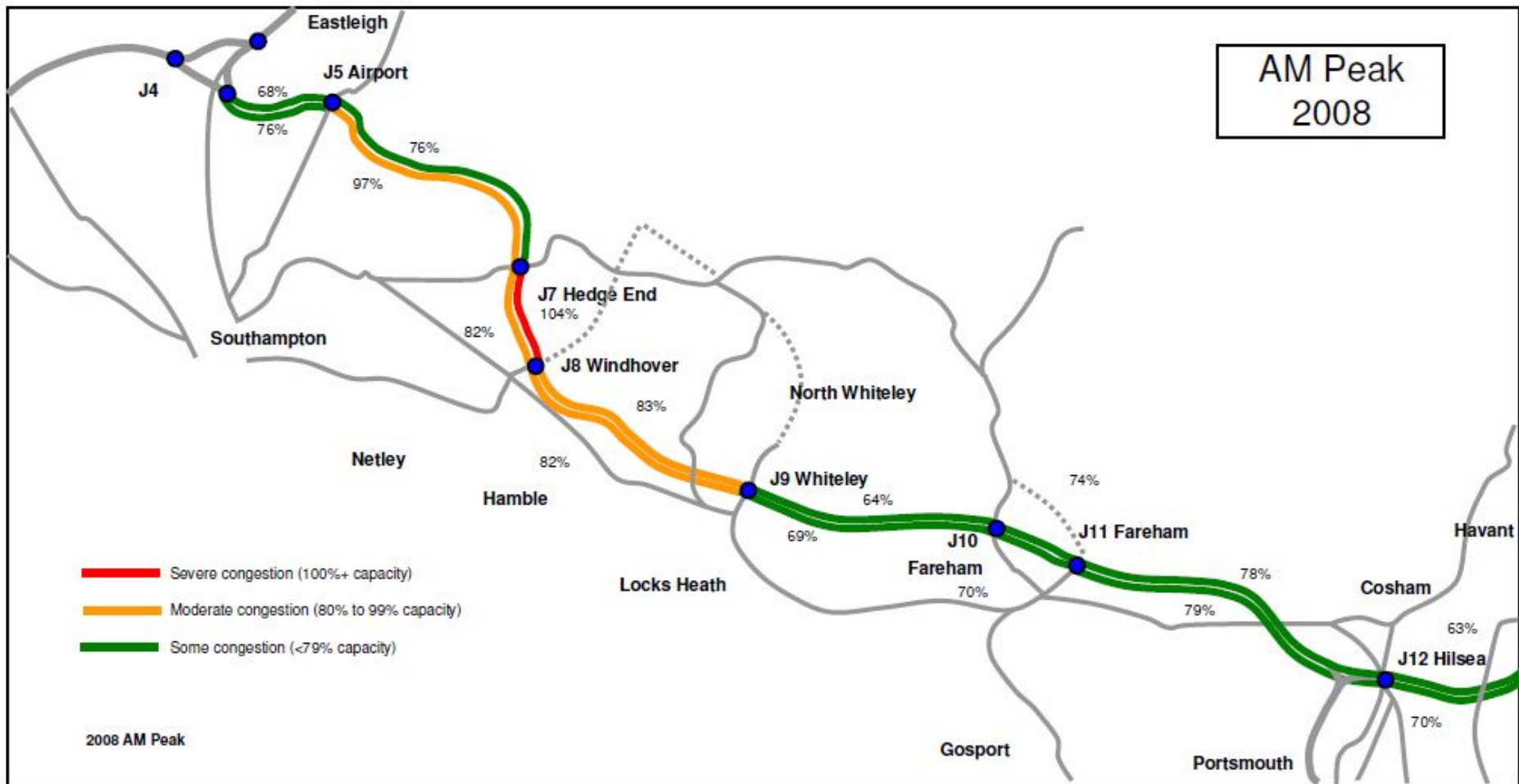


Figure S.1: AM Peak Link Flows Relative to Capacity 2008

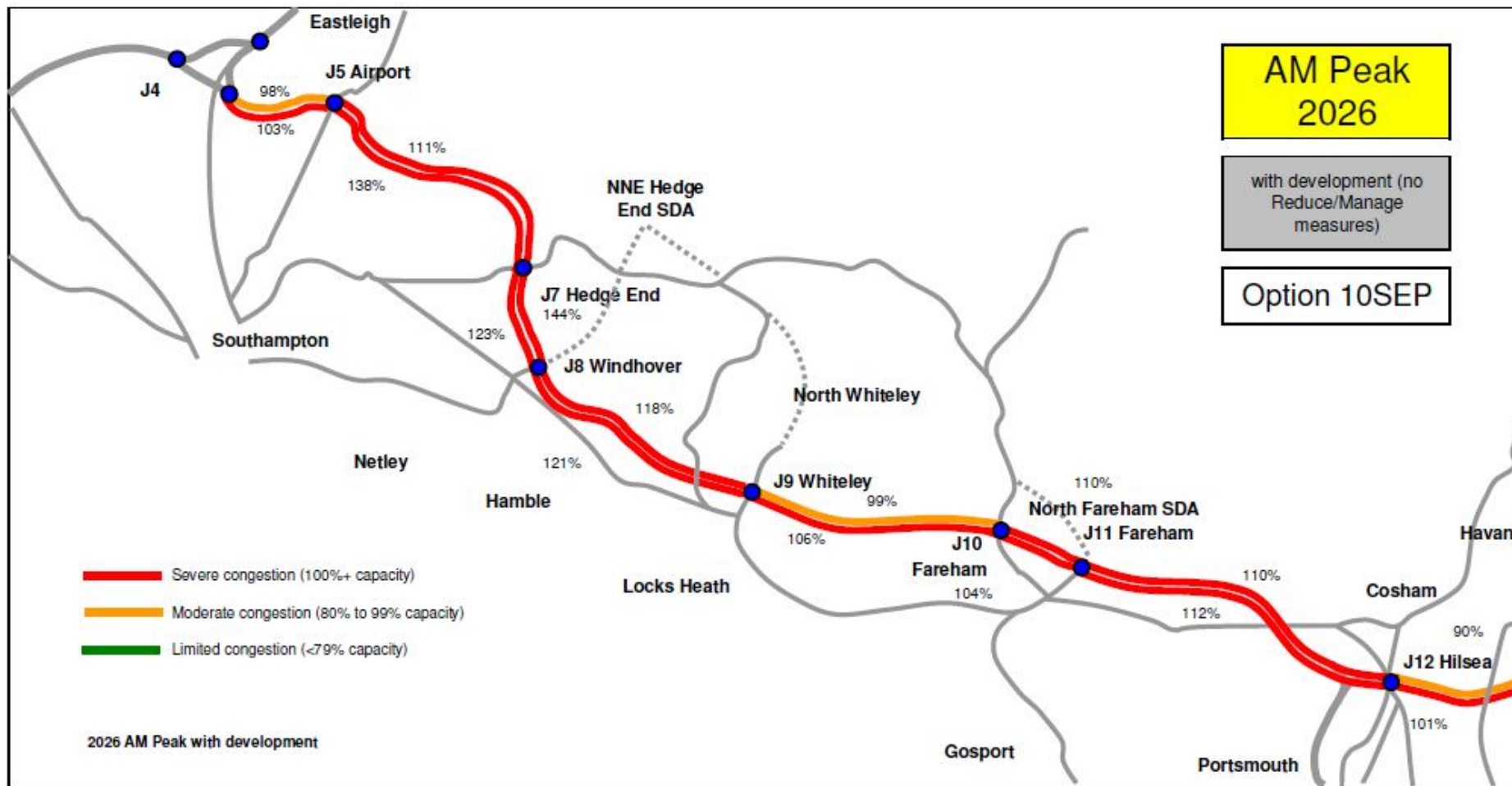


Figure S.2: AM Peak Link Flows Relative to Capacity 2026 With Development but With No Interventions (except Whiteley Way) (South East Plan Allocations)

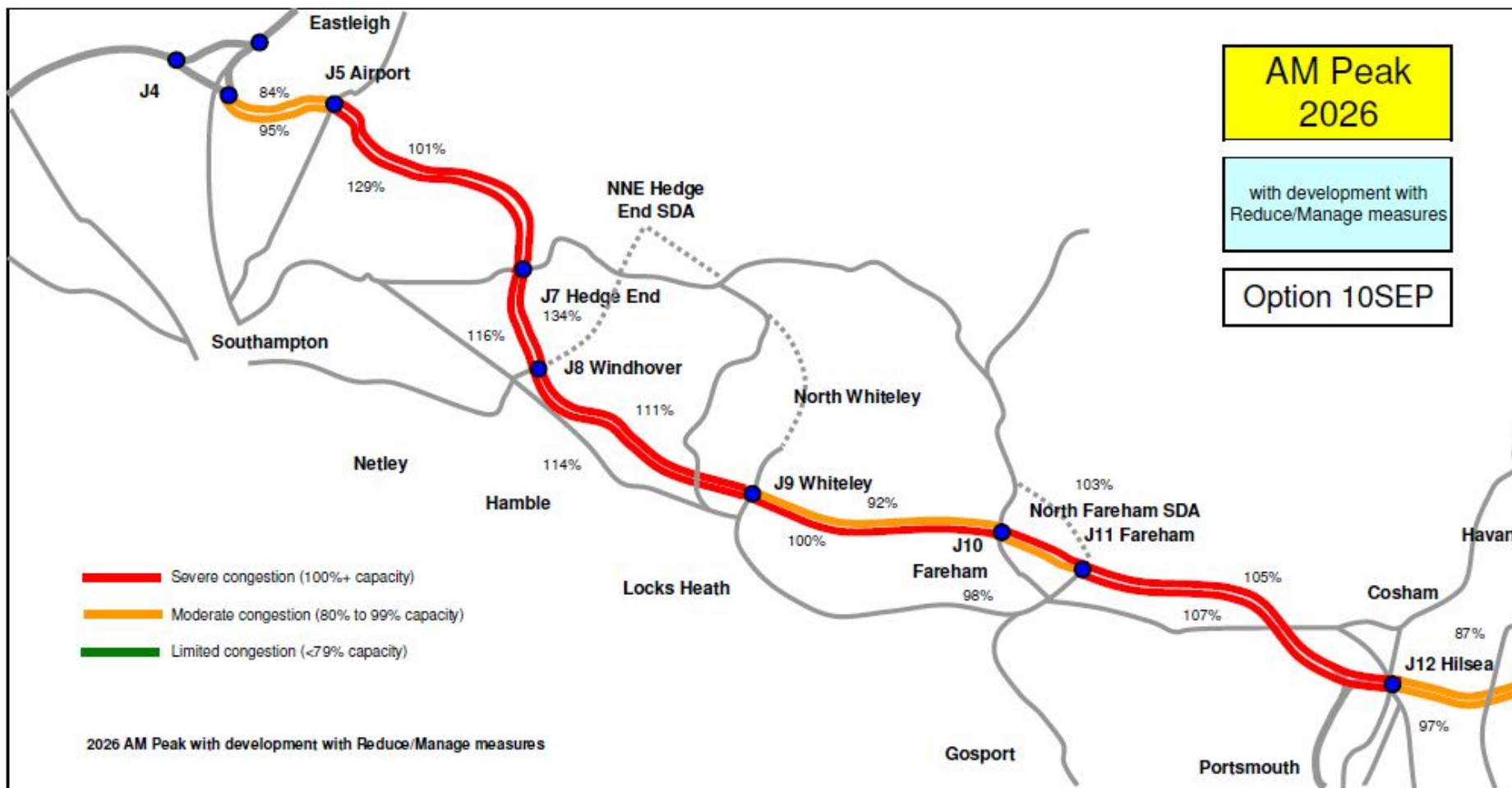


Figure S.3: AM Peak Link Flows Relative to Capacity 2026 With Development but With No Interventions (except Whiteley Way) (south East Plan Allocations) With Reduce/Manage Measures

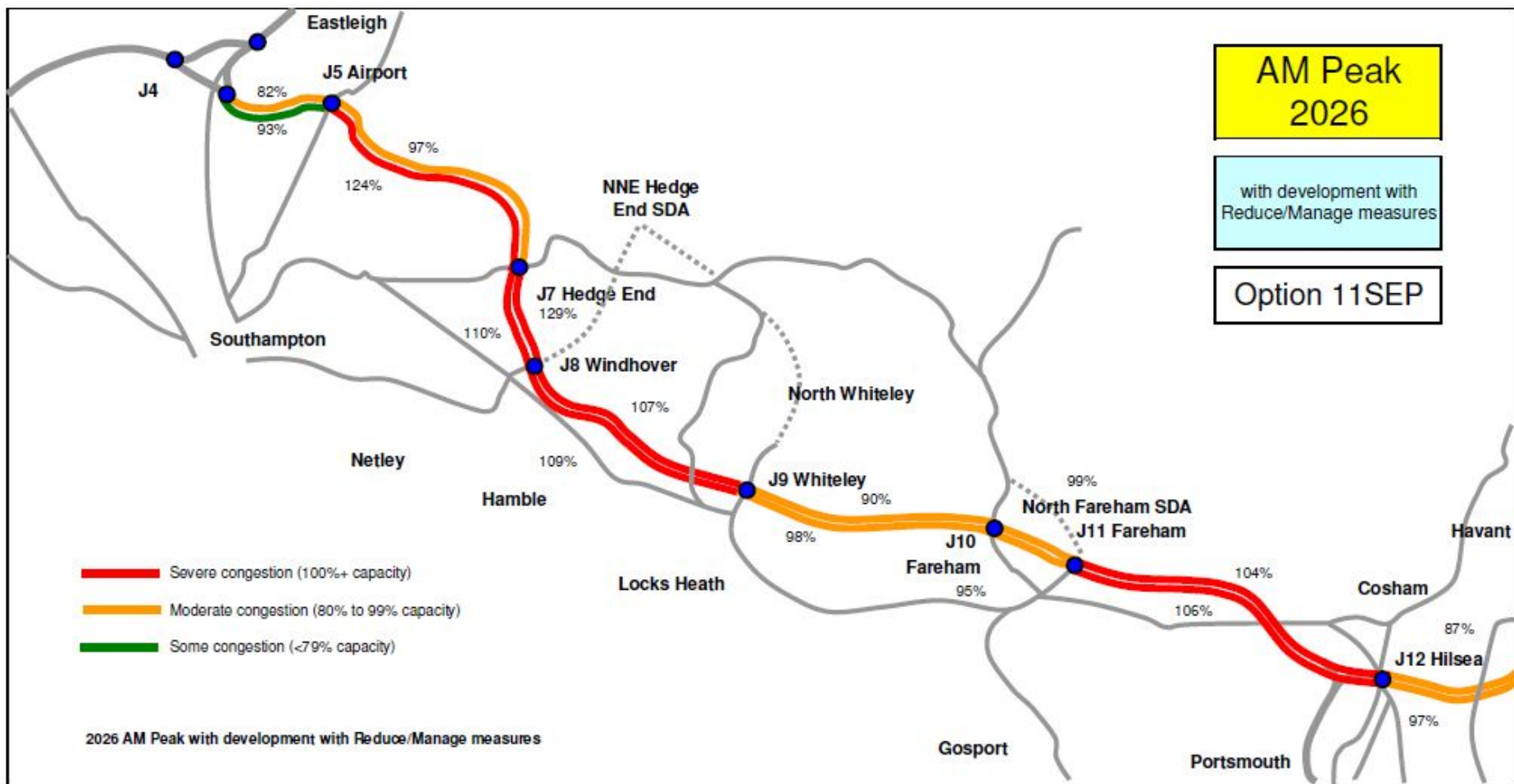


Figure S.4: AM Peak Link Flows Relative to Capacity With All Development (South East Plan Allocations) – Improved Access to Junction 8 and All-Moves Junction 10

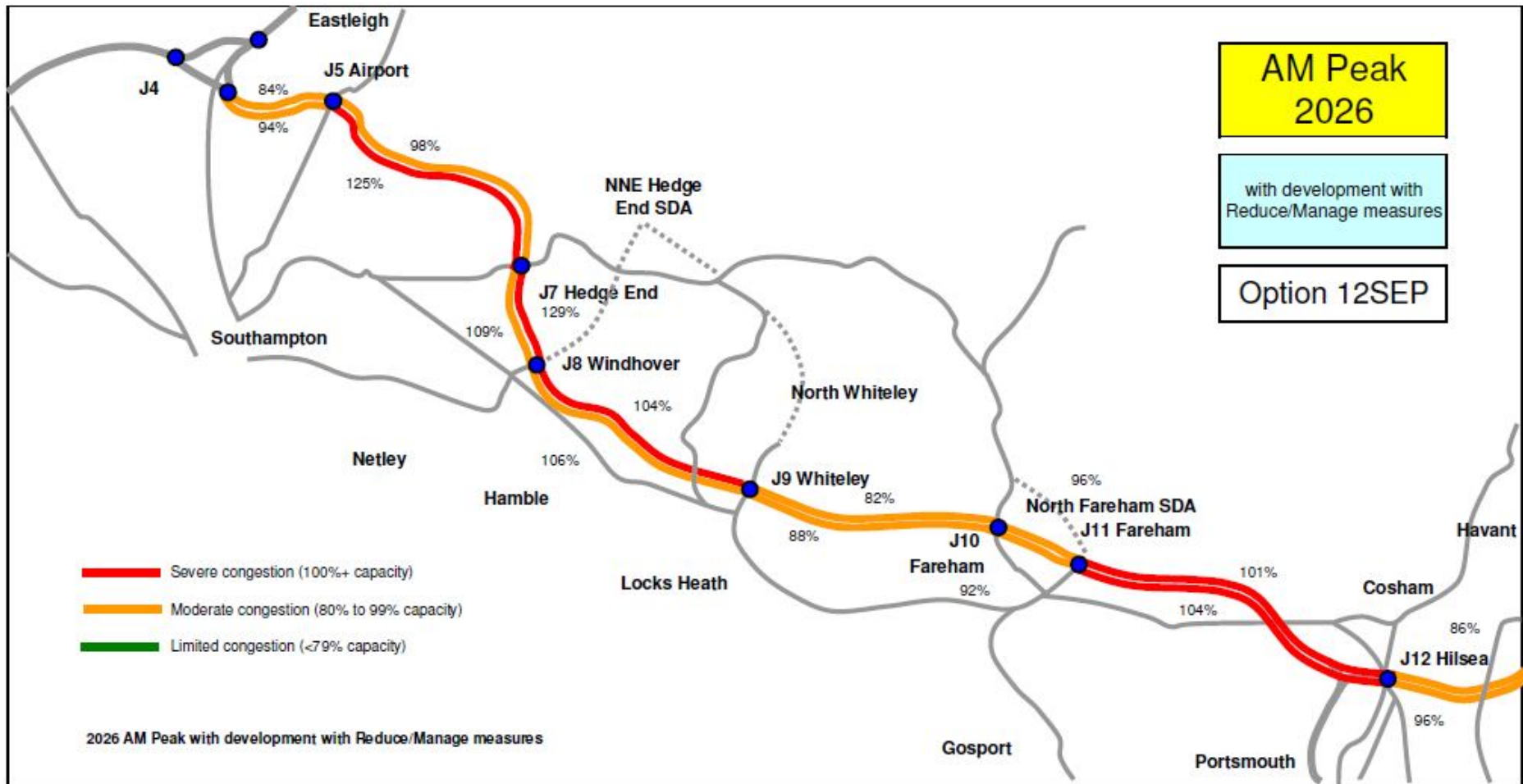


Figure S.5: AM Peak Link Flows Relative to Capacity With Development (South East Plan Allocations but Reduction at North Fareham SDA) With Improved Access to Junction 8, A32 Realigned to Junction 11, and Limited Access Retained at Junction 10 With Reduce/Manage Measures

