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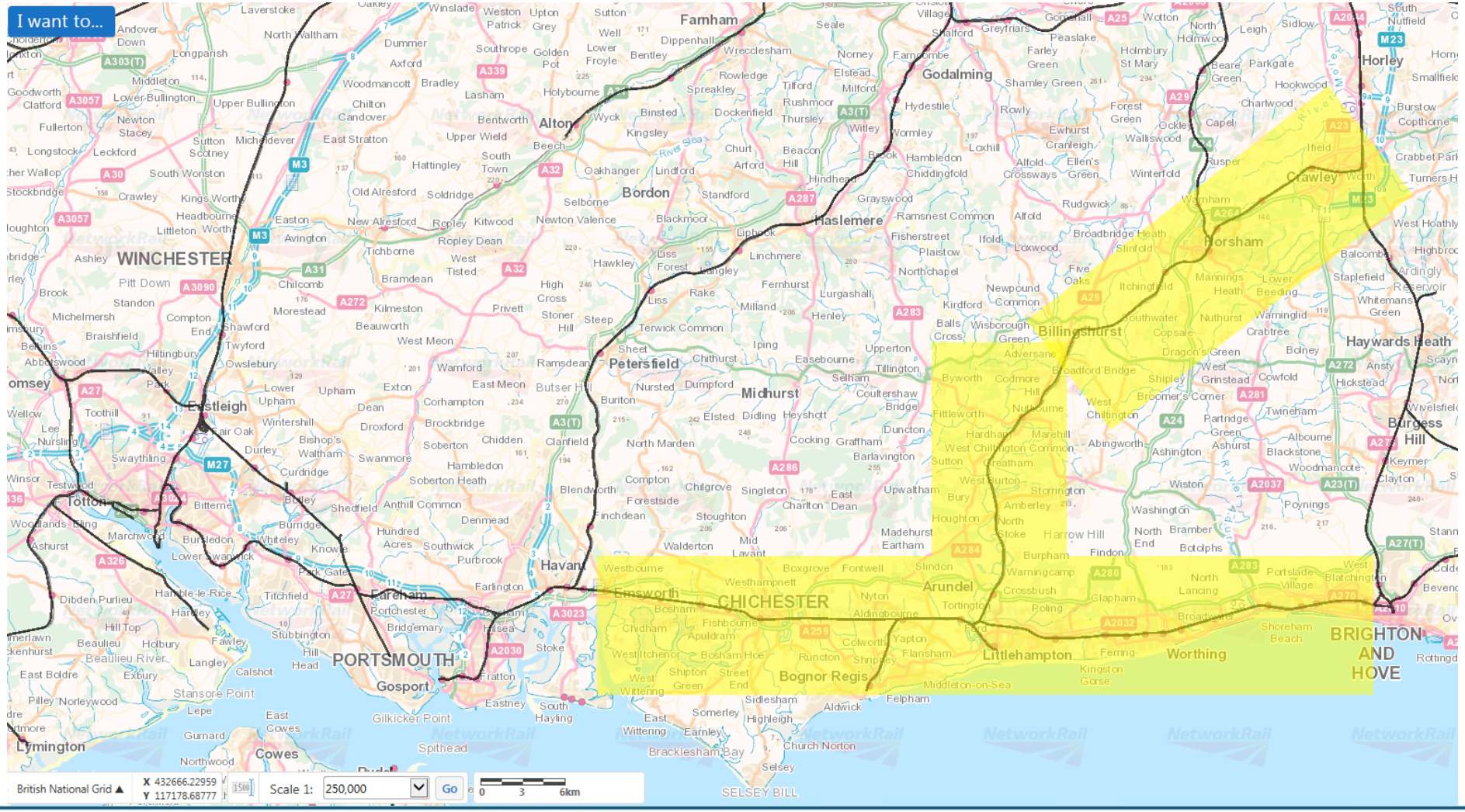
West Sussex Connectivity CMSP Update

Paul Best / 6 February 2020

West Sussex Connectivity CMSP



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Demand drivers

Conventional demand forecasting drivers

- Population
- Employment
- GVA
- Fares policy
- Forecast car costs and speeds

Lots of research, well understood

Uncertain demand drivers

- Policy interventions
- Technological change
- Environmental impacts and attitudes

To understand these requires **scenario planning**

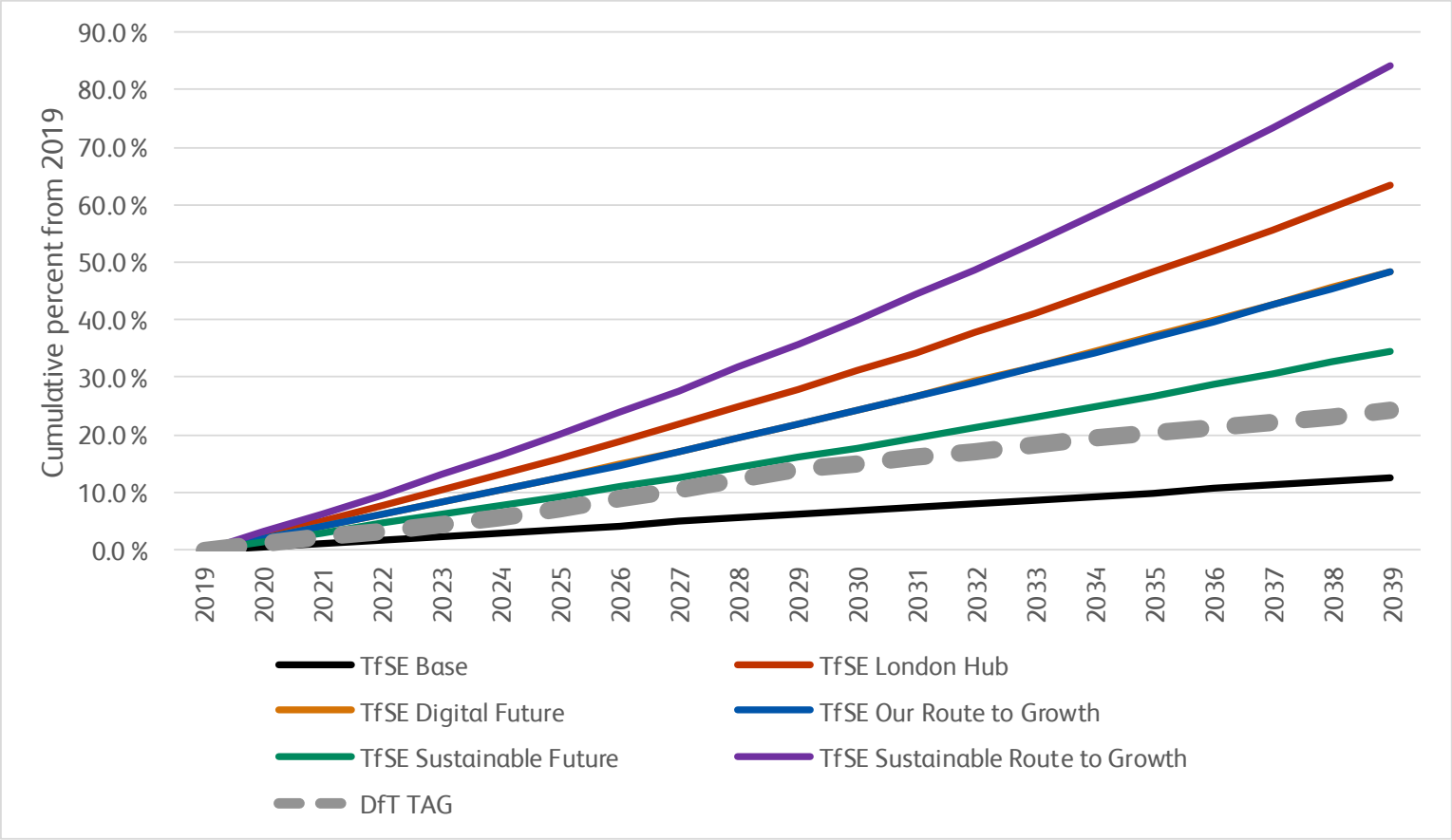
TfSE Scenario Growth Rates

- Deliberately considering multiple futures
- Sustainable Route to Growth 'preferred future'

Table 2 | Characteristics of the five scenarios

Scenario	Key transport principle	Supported by	Modelled through
London Hub	Radial travel	• Rail metro-isation • Access to rail • Commuter rail quality • Road capacity	• Double rail capacity on radials to London • Reduce access time/cost to rail stations by 20% • Reduce rail journey times by 20% • Increase road capacity on radials to London by 50%
Digital Future	Connected and Autonomous Vehicle network	• No policy constraints on CAV/MAAS • Pedestrianised urban centres	• Reduce car GJT by 20% • Increase road capacity by 20% • Reduce all rail, bus, active GJT by 30%
Our Route to Growth	Orbital travel	• Improved orbital road • Improved orbital rail • High quality urban transit	• Reduce orbital rail GJT by 20% • Increase orbital rail capacity by 50% • Increase orbital road capacity by 50% • Reduce intra-zonal rail/bus/active GJT by 20% • Reduce car GJT by 20%
Sustainable Future	Demand management	• Road pricing • Road space reallocation • Public transport fare subsidisation • Better bus services (faster and more frequent services)	• Double vehicle operating costs • Bus fare reduction of 50% • 50% reduction in rail fare • Reduce intra-zonal rail/bus/active GJT by 20%
Sustainable Route to Growth	Mode shift	• Road pricing • PT fare subsidisation • No policy constraints on CAV/Maas • Road space reallocation • Better bus/ high quality urban transit • Pedestrianised urban centres	• Double vehicle operating costs • Rail and bus fare reduction of 50% • Reduce car GJT by 20% • Increase road capacity by 20% • Reduce all rail, bus, active GJT by 30%

TfSE Scenario Growth Rates



Appraised Growth Rates

TfSE Sustainable Route to Growth (+84%)

TfSE Sustainable Future (+35%)

DfT TAG (+24%)

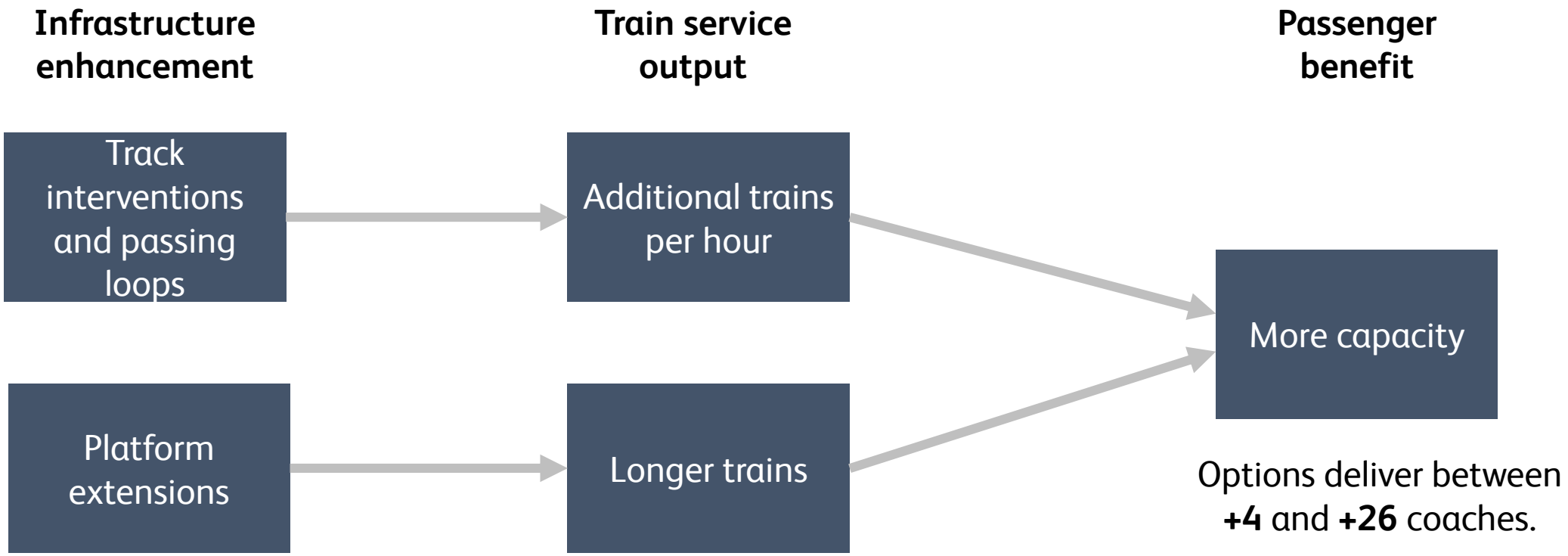
Forecast vehicle shortfall 0800-0859

(per growth rate and standing metric)

Average standing density in 2039 AM Peak (passengers / m^2)	**2/m^2**	**1/m^2**	**0.5/m^2** (current)	**0/m^2** (no standing on average)
DfT TAG (+24 %)	0	2	5	8
TfSE SF (+35 %)	0	4	7	10
TfSE SRtD (+84 %)	7	13	16	21

Some trains may be more or less crowded than the average.

Matching interventions to capacity gap



Options deliver between **+4** and **+26** coaches.

Strategic Questions and answers

Strategic Questions

Strategic Themes	Strategic questions	Sub-questions
Rebalancing the economy	How can the network be improved for both local and long-distance journey time?	1. How best can the railway deliver local connectivity for shorter journeys in West Sussex?
		2. Can journey times be reduced for longer distance services and additional services beyond Southampton introduced?
Wider Transport Connectivity	How the railway links into other transport provision and what changes could be introduced to improve this?	3. Does the railway offer an opportunity to reduce congestion on key roads?
		4. How can access to the railway network be improved from other modes of transport?
Planning for Sustainable Growth	How best to respond to projected future increases in demand and the new housing planned across the region whilst contributing to decarbonisation?	5. Can the rail service accommodate current and project demand at peak times whilst improving network reliability?
		6. How can rail support the delivery of substantial amounts of new housing?

1. How best can the railway deliver local connectivity for shorter journeys in West Sussex?

1A. Are there gaps in local connectivity?

1B. How do we balance aspirations for faster journey times and longer distance services with existing markets on short distance services?

1C. Do the first and last trains provide good connectivity?

1D. Is the rolling stock used for local journeys appropriate for the needs of passengers?

1E. Do the location of stations adequately cover the area's population?

1F. Are there opportunities for new stations to serve the area?

1G. Are there opportunities to improve journey times by reducing the service levels at stations that are very close to other stations?

2. Can journey times be reduced for longer distance services and additional services beyond Southampton introduced?

2A. Are we delivering a competitive journey time between Brighton and key destinations to support economic growth and social inclusion?

2B. Are we delivering competitive journey times and frequency for longer distance services from Brighton – e.g.: to Bristol?

2C. Are we delivering a competitive journey time to London from Arun Valley locations?

3. Does the railway offer an opportunity to reduce congestion on key roads?

3A. Is there an opportunity to reduce congestion on the road network?

3B. Are there opportunities to close any level crossings and replace with bridges?

Station	Platform length (coaches)	Number of trains per day		
		Stopping	Overhanging	Percentage
Lancing	5	104	11	11 %
Goring-by-Sea	6	67	12	18 %
Angmering	6	84	12	14 %
Littlehaven	8	43	40	93 %
West Worthing	8	96	5	5 %

4. How can access to the railway network be improved from other modes of transport?

4A. How do we better improve integration between rail and bus services?

4B. Are we providing enough car parking capacity at stations?

4C. Are we providing a viable public transport option to the South Downs National Park and other outdoor spaces?

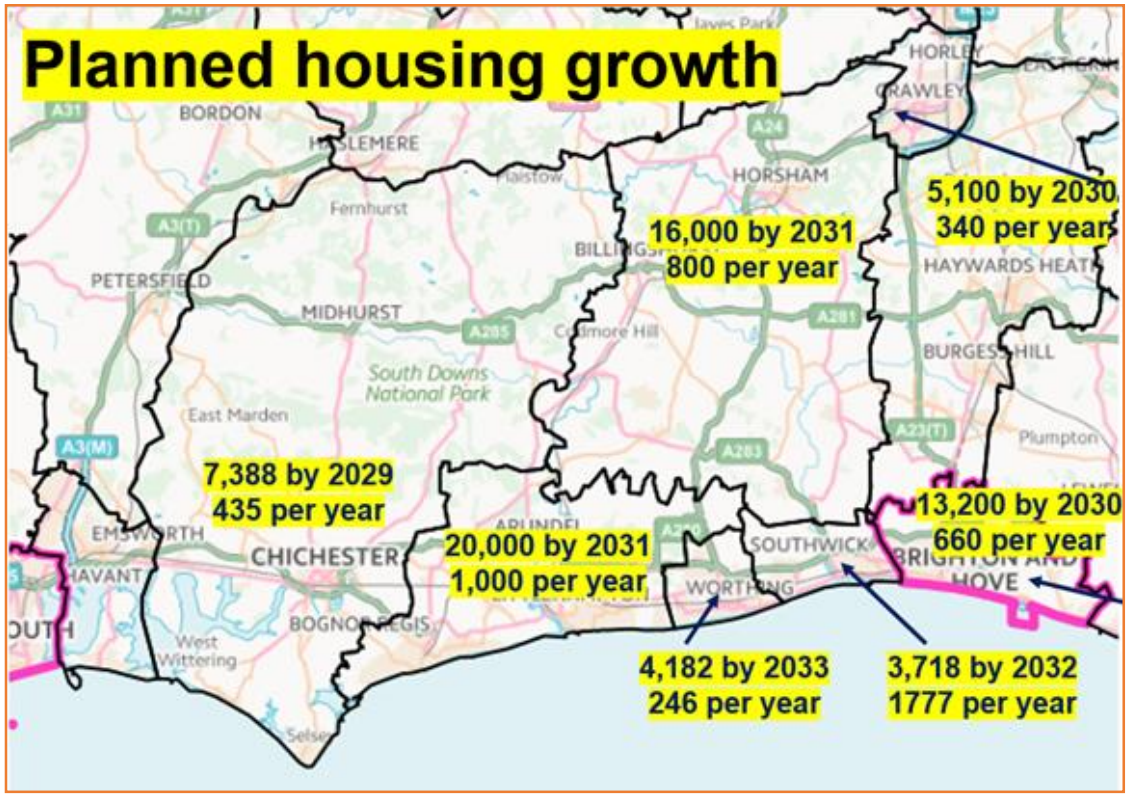
5. Can the rail service accommodate current and project demand at peak times whilst improving network reliability?

5A. Is the railway accommodating demand at peak times?

5B. Is the railway accommodating additional demand caused by seasonal/special events?

6. How can rail support the delivery of substantial amounts of new housing?

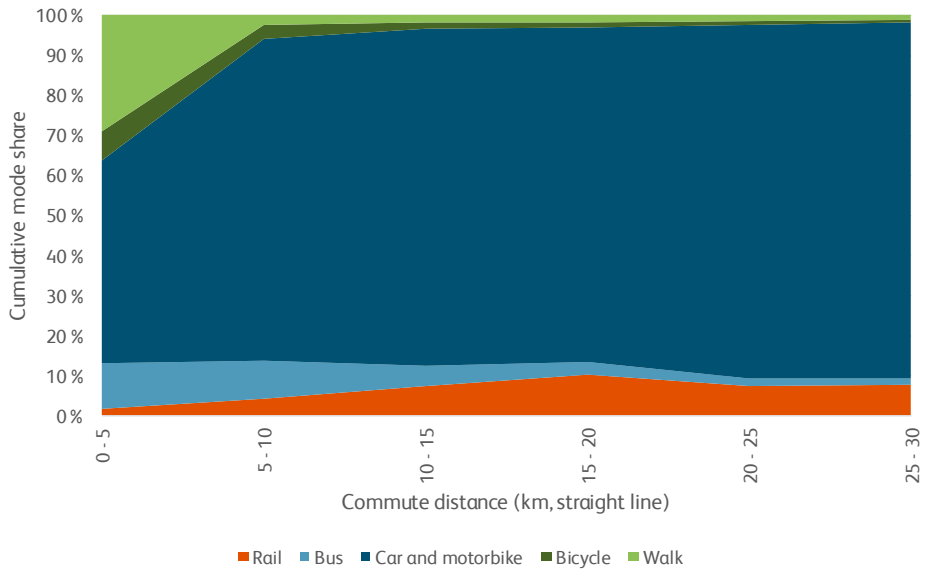
6A. Does the current rail service reflect the changing housing market?



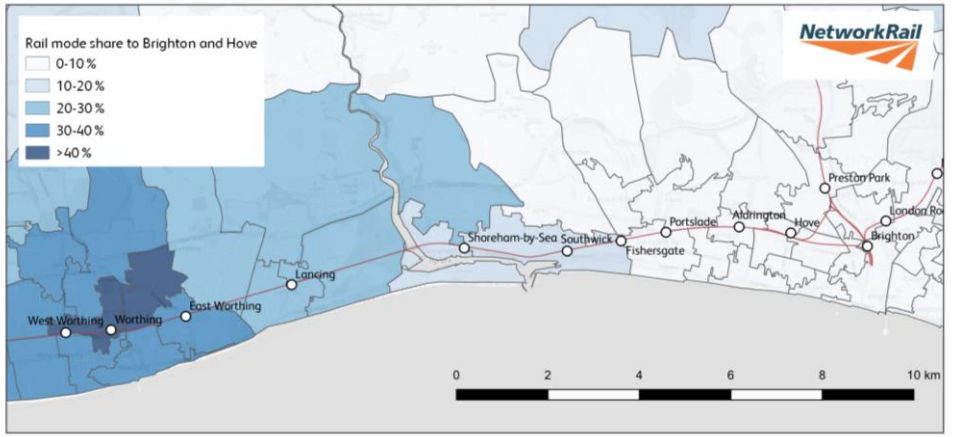
Metro or inter-regional?

Rail does not serve short distance travel very effectively

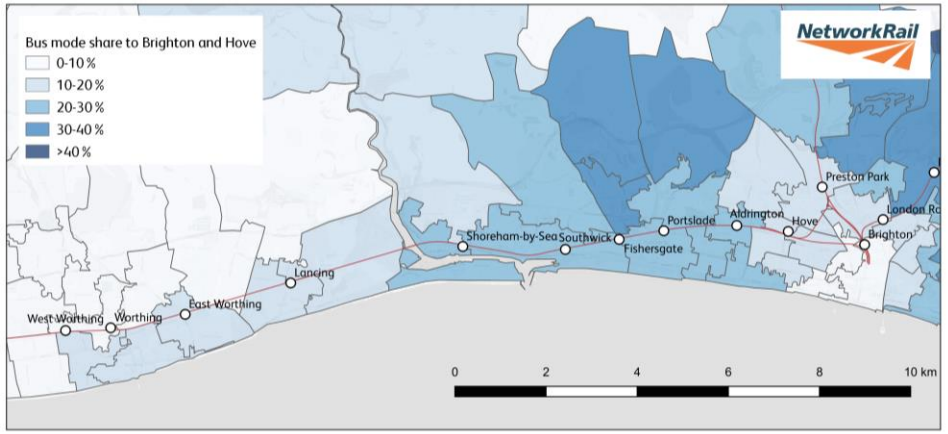
Mode by Distance Travel to Work



Rail



Bus



2011 Census

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Challenges with railway infrastructure

- Two-track railway, no opportunities for overtaking
- Cannot operate frequent slow services and fast inter-urban services on the same track.
- Extremely disruptive to four-track

True cost of road

- People do not understand/recognise the true cost of road
- Buying a car is like buying a multi-year flexible season ticket

- Station parking and rail fare seen as an additional cost

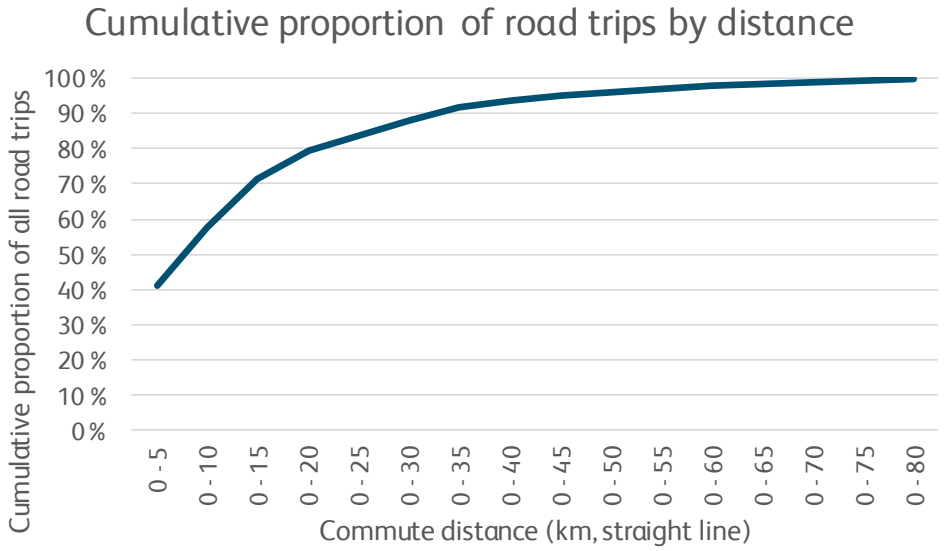
- HMRC have calculated that the cost of car usage is 45p per mile

Mode	Worthing to Brighton		Shoreham-by-Sea to Chichester		Chichester to Portsmouth & Southsea	
	Departure time Return at	Cost (journey) Cost (parking) Total cost	Departure time Return at	Cost (journey) Cost (parking) Total cost	Departure time Return at	Cost (journey) Cost (parking) Total cost
All day commute - arrive by 08:55 and depart after 17:05						
Rail	08:25 17:28	£12.40 £5.95 £18.35	08:14 18:04	£16.80 £4.75 £21.55	08:12 17:38	£9.60 £5.60 £15.20
Bus	07:45 18:00	£8.20	06:10 (arrives at 09:08) 19:48	£8.20	07:41 18:29	£8.20
Car	07:15 17:52	£10.35 £9.00 £19.35	07:40 18:15	£23.85 £5.60 £29.45	08:25 17:40	£15.75 £8.60 £24.35
Shopping trip - arrive by 12:00 and depart after 15:00						
Rail	11:26 15:49	£6.70 £5.95 £12.65	11:16 16:07	£12.50 £4.75 £17.25	11:13 15:40	£9.10 £3.20 £12.30
Bus	11:05 16:00	£8.20	09:11 17:44	£8.20	10:47 16:29	£8.20
Car	11:05 16:00	£10.80 £6.00 £16.80	10:50 16:10	£22.50 £2.40 £24.90	11:30 15:35	£15.30 £5.60 £20.90

Sources: Rail journeys and fares - nationalrail.co.uk, bus journeys and fares - stagecoachbus.com, road journeys - Google Maps and car parking information - Parkopedia. Rail fares are standard class day or off-peak returns, bus fares are day return tickets and car park tickets do not include the discounts applicable to weekly, monthly or annual season tickets.

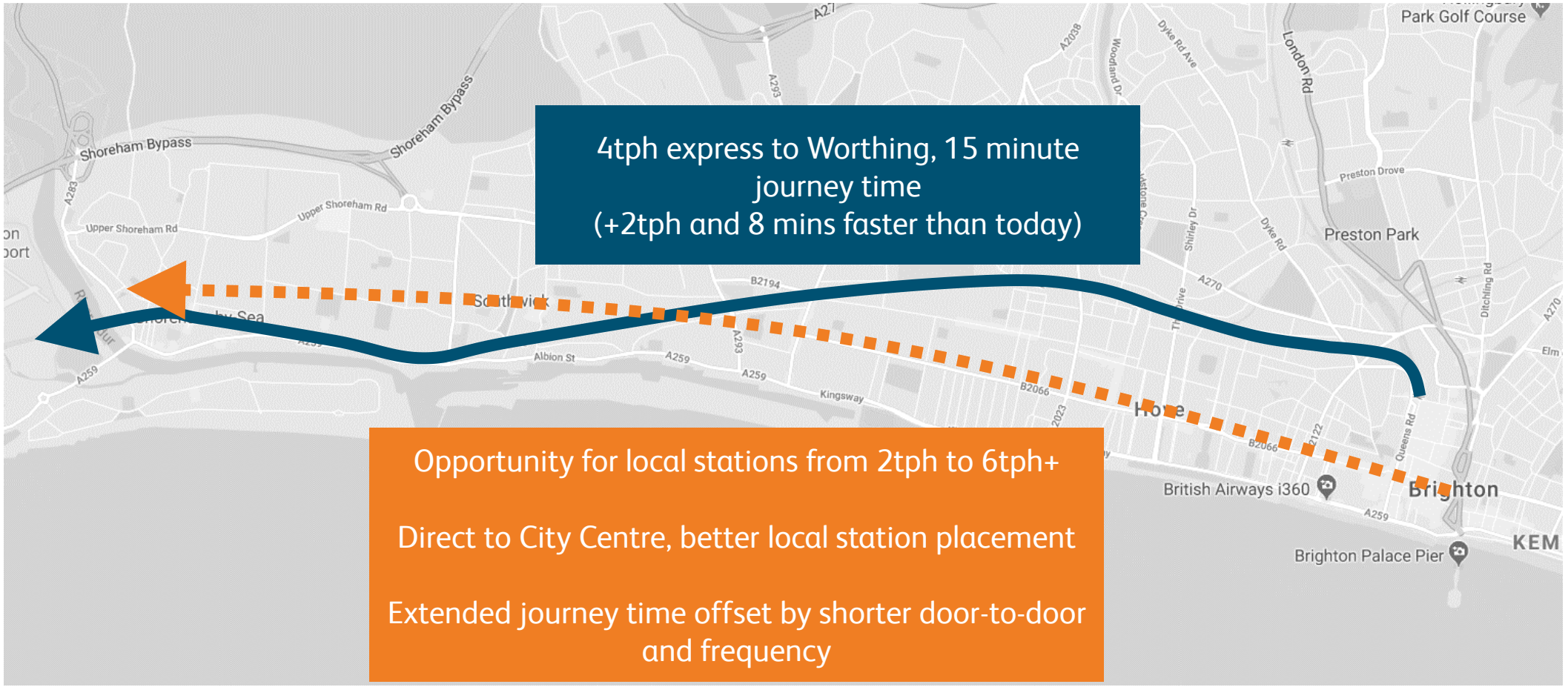
Road congestion is very localised, not easily solved by rail

60 % of all road travel in the region is below 10km, 80 % below 20km



A27 between Angmering and Ford: 50 % of peak journeys less than 10km

Better journeys on both local and interurban journeys



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Linespeed improvements

- Where possible 90 mph
- West Coastway – achievable for much of the line
- Arun Valley – achievable between Three Bridges and Horsham

- Future signalling to be set for 90 mph where it is achievable
- Future track renewals should be for 90 mph
- Other disciplines would need to be assessed

Passing Loops

- Worthing bi-directional platforms
  - Ability to turn trains back
  - Reduces the length of bustitution during engineering works/perturbation
  - Timetable option for Brighton – Worthing services
  - May include a third track alignment over the level crossing to enable the island platform to be widened and/or extended
- Three-track dynamic passing loops
  - Nutbourne to Bosham
  - Lancing to River Adur (alongside Shoreham Airport)
- Four-tracking
  - Southwick to Hove – to show how difficult and expensive it would be

Brighton Platform 3

- West Coastway services can only use Platform 1 (12-car), 2 (12-car) and 3 (4-car)
- Extra services and longer trains may require a longer Platform 3
- Various options explored:
  - Dedicated West Coastway Platform 3
  - Replacement BML platform on the former cab road or adjacent to Platform 8
  - Additional platform on the West Loop line which is not 12-car but long enough for West Coastway services to turn back
  - New Platform 0 alongside the retaining wall

Power Supply

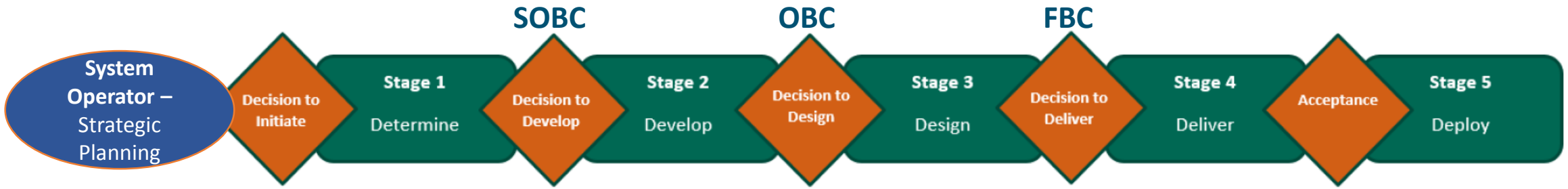
- CP5 power supply upgrade means that Brighton to Arundel Jn is okay
- The TP Hut at Toddington should be upgraded to a substation
- One or more TP Huts between Chichester and Havant may need to be upgraded
- High Voltage supplies are good
- ETE believed to be good between Brighton and Littlehampton
- Further enhancement may be required if changes to the service pattern, passing loops etc. but these are not significant
- Further modelling required

Going forward

Work already underway

- We have shared some of the initial findings with the DfT and other Network Rail colleagues
  - Timetable options being considered for the refranchising process
  - Platform extensions at level crossings being considered
  - 90 mph signalling on the Arun Valley (Three Bridges to Horsham) and West Coastway to be taken forward as enhancement to renewals
  - Bi-directional working between Horsham and Crawley/Three Bridges being looked at
  - Resignalling of the West Coastway being looked at for Digital Railway and conventional signalling
  - Class 313 replacement being looked into

Rail Network Enhancements Pipeline (RNEP)



- CP5 issues are concluded to have largely stemmed from early commitment before sufficient maturation
- Rolling programme of investment from the Government which focusses on delivering real benefits for passengers, freight users and the economy.
- Schemes which are seeking funding from the Department for Transport need to progress through the RNEP decision gateways before moving into delivery.
- The process can be summarised as a five-stage process, moving from an initial 'Decision to Initiate', taking the scheme into the pipeline and unlocking funding for a Strategic Outline Business Case (SOBC) to deployment once an Enhancement has been completed and accepted onto the network.

Next stop…

Transport for the South East

Orbital and Coastal Routes

Thank you for your time