

# Western Rail Link to Heathrow (WRLtH)

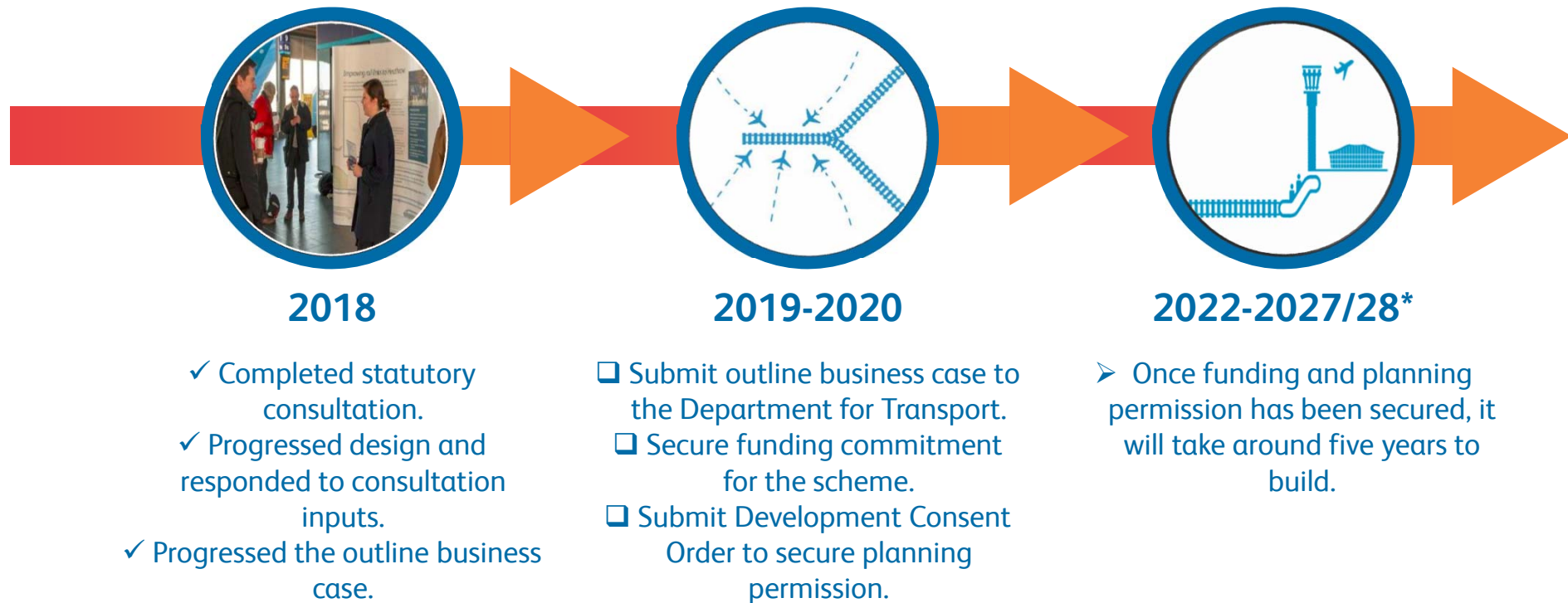
Slough Borough Council

Modelling outputs - January 2020



# The Western Rail Programme

## Progress and next steps



\* Timescale is dependent upon DCO determination and Final Business Case approval

## Potential journey time savings

How long will it take to get to Heathrow Terminal 5?

### 4 trains per hour, in each direction.

All trains calling at Reading and Slough, alternate trains calling at Twyford and Maidenhead.

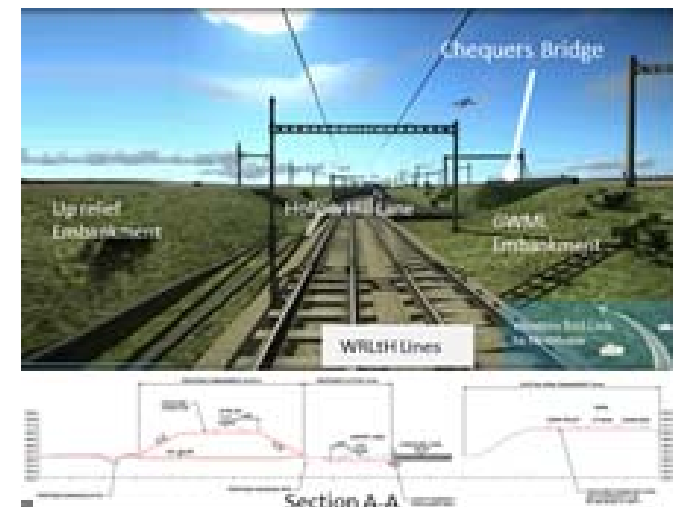
Station	Current rail journey time	Proposed Western Rail Link time	Average car journey time
Reading	68 mins	<b>25 mins</b>	40-60 mins
Twyford	67 mins	<b>19 mins</b>	30-45 mins
M Maidenhead	59 mins	<b>14 mins</b>	20-35 mins
Slough	52 mins	<b>7 mins</b>	15-25 mins



Up to **92% journey time saving** for rail journeys  
Up to **76% journey time saving** using rail instead of car

# Highways modelling

- DCO requires a proportionate approach to mitigations and this will be based on data outputs from modelling.
- Assessing construction effects and the full scheme at completion.
  - Cemex agreement – shared site and decreased HGV impact. Instead of ~1400 HGV movements a month, proposed reduction to ~400/month with agreement in place.
- Hollow Hill Lane Closure
  - model outputs assess traffic flow, noise and AQ impacts.
  - modelling demonstrates worse case scenarios i.e. robust case
  - mitigation details proposed by the project for discussion with officers
- Most affected junctions identified from the strategic model then assessed at a local level to identify mitigations.
- Likely anticipated options for consideration:
  - Highway improvements to most affected junctions
  - Robust construction management statement
  - Cemex agreement – shared site and decreased HGV impact.

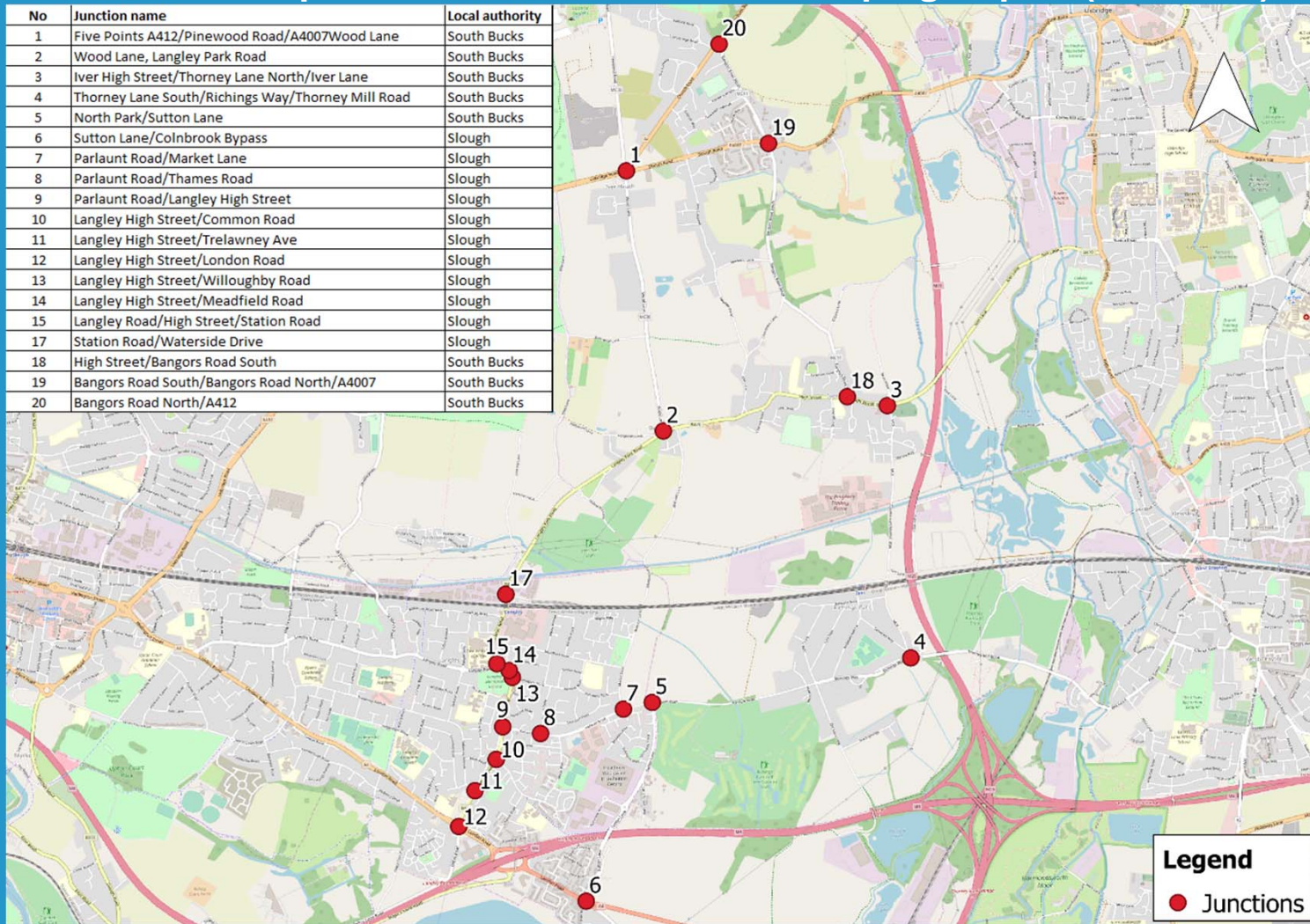




# Western Rail Link to Heathrow (WRLtH)

## Junctions identified for potential assessment in TA Scoping Report (Nov 2018)

No	Junction name	Local authority
1	Five Points A412/Pinewood Road/A4007Wood Lane	South Bucks
2	Wood Lane, Langley Park Road	South Bucks
3	Iver High Street/Thorney Lane North/Iver Lane	South Bucks
4	Thorney Lane South/Richings Way/Thorney Mill Road	South Bucks
5	North Park/Sutton Lane	South Bucks
6	Sutton Lane/Colnbrook Bypass	Slough
7	Parlaunt Road/Market Lane	Slough
8	Parlaunt Road/Thames Road	Slough
9	Parlaunt Road/Langley High Street	Slough
10	Langley High Street/Common Road	Slough
11	Langley High Street/Trelawney Ave	Slough
12	Langley High Street/London Road	Slough
13	Langley High Street/Willoughby Road	Slough
14	Langley High Street/Meadfield Road	Slough
15	Langley Road/High Street/Station Road	Slough
17	Station Road/Waterside Drive	Slough
18	High Street/Bangors Road South	South Bucks
19	Bangors Road South/Bangors Road North/A4007	South Bucks
20	Bangors Road North/A412	South Bucks



## Revised Slough Multi-Modal Model outputs

Forecast change in traffic flow from '2022 Without Scheme' scenario to '2022 With Scheme' scenario

Morning peak hour (8am – 9am)  
Evening peak hour (5pm – 6pm)

Absolute change in Passenger Car Units (PCUs) by direction  
% change in PCUs by direction

Red = more traffic with scheme  
Green = less traffic with scheme





# Western Rail Link to Heathrow (WRLtH)



## Absolute change in PCUs by direction: 2022 weekday 'without scheme' to 'with scheme'

Morning peak hour (8am-9am)



## % change in PCUs by direction: 2022 weekday 'without scheme' to 'with scheme'

Morning peak hour (8am-9am)



Evening peak hour (5pm-6pm)



Evening peak hour (5pm-6pm)



## Revised Slough Multi-Modal Model outputs

Forecast change in traffic flow from '2028 Without Scheme' scenario to '2028 With Scheme' scenario

Morning peak hour (8am – 9am)  
Evening peak hour (5pm – 6pm)

Absolute change in Passenger Car Units (PCUs) by direction  
% change in PCUs by direction

Red = more traffic with scheme  
Green = less traffic with scheme





# Western Rail Link to Heathrow (WRLtH)



Absolute change in PCUs by direction: 2028 weekday 'without scheme' to 'with scheme'

Morning peak hour (8am-9am)



% change in PCUs by direction: 2028 weekday 'without scheme' to 'with scheme'

Morning peak hour (8am-9am)



Evening peak hour (5pm-6pm)






Evening peak hour (5pm-6pm)



NB. % flow change on Billet Lane in evening peak hour is model anomaly – peak hour flow 'Without Scheme' in model is 0.38 PCUs, increasing to 0.94 PCUs 'With Scheme' (147% increase)

## Target junction selection criteria

- Criteria in figure below applied to 2022 and 2028 model outputs to identify junctions for assessment using local junction models
- All junctions where change in traffic Volume/Capacity Ratio (VCR) from 'Without Scheme' to 'With Scheme' on any arm in any time period exceeded 5%, and where the 'With Scheme' VCR is above 80% flagged as Amber or Red (Red where 'With Scheme' VCR is above 95%)

Flag	Description
	<p><b>With Scheme</b> VCR is below <span style="border: 1px solid black; padding: 2px;">80%</span> on all arms.</p>
	<p><b>With Scheme</b> VCR is above <span style="border: 1px solid black; padding: 2px;">80%</span> but below <span style="border: 1px solid black; padding: 2px;">95%</span> on one or more arms and  <b>Without Scheme</b> VCR on the corresponding arms is below <span style="border: 1px solid black; padding: 2px;">80%</span> and                      The change in VCR from <b>Without Scheme</b> to <b>With Scheme</b> exceeds <span style="border: 1px solid black; padding: 2px;">5%</span></p>
	<p><b>With Scheme</b> VCR is above <span style="border: 1px solid black; padding: 2px;">95%</span> and  <b>Without Scheme</b> VCR on the corresponding arms is below <span style="border: 1px solid black; padding: 2px;">95%</span> and                      The change in VCR from <b>Without Scheme</b> to <b>With Scheme</b> exceeds <span style="border: 1px solid black; padding: 2px;">5%</span></p>



## Western Rail Link to Heathrow (WRLtH)



### Junction selection results

- 4 junctions flagged as Amber or Red so taken forward for local modelling assessment
- One additional junction (12 – Langley High Street / A4 London Road) very close to Amber rating (4% change in VCR) so included following review
- Local junction modelling currently underway (all 5 are signal junctions so will be modelled using LinSig V3 software)

No	Junction name	Local authority	2022			2028		
			AM	IP	PM	AM	IP	PM
1	Five Points A412/Pinewood Road/A4007Wood Lane	South Bucks						
2	Wood Lane, Langley Park Road	South Bucks						
3	Iver High Street/Thorney Lane North/Iver Lane	South Bucks						
4	Thorney Lane South/Richings Way/Thorney Mill Road	South Bucks						
5	North Park/Sutton Lane	Slough	Red		Red			Amber
6	Sutton Lane/Colnbrook Bypass	Slough						
7	Parlaunt Road/Market Lane	Slough						
8	Parlaunt Road/Thames Road	Slough						
9	Parlaunt Road/Langley High Street	Slough			Amber			Amber
10	Langley High Street/Common Road	Slough						
11	Langley High Street/Trelawney Ave	Slough	Amber			Amber		
12	Langley High Street/London Road	Slough						
13	Langley High Street/Willoughby Road	Slough						
14	Langley High Street/Meadfield Road	Slough						
15	Langley Road/High Street/Station Road	Slough						
17	Station Road/Waterside Drive	Slough	Amber		Amber	Amber		Amber
18	High Street/Bangors Road South	South Bucks						
19	Bangors Road South/Bangors Road North/A4007	South Bucks						
20	Bangors Road North/A412	South Bucks						

NB. Overall reduction in traffic flow forecast through North Park/Sutton Lane junction in the 'With Scheme' scenario in both 2022 and 2028. However, the Scheme is expected to change the balance of traffic through the junction (more traffic approaching from east, less from west), pushing some arms over capacity and triggering need for assessment.

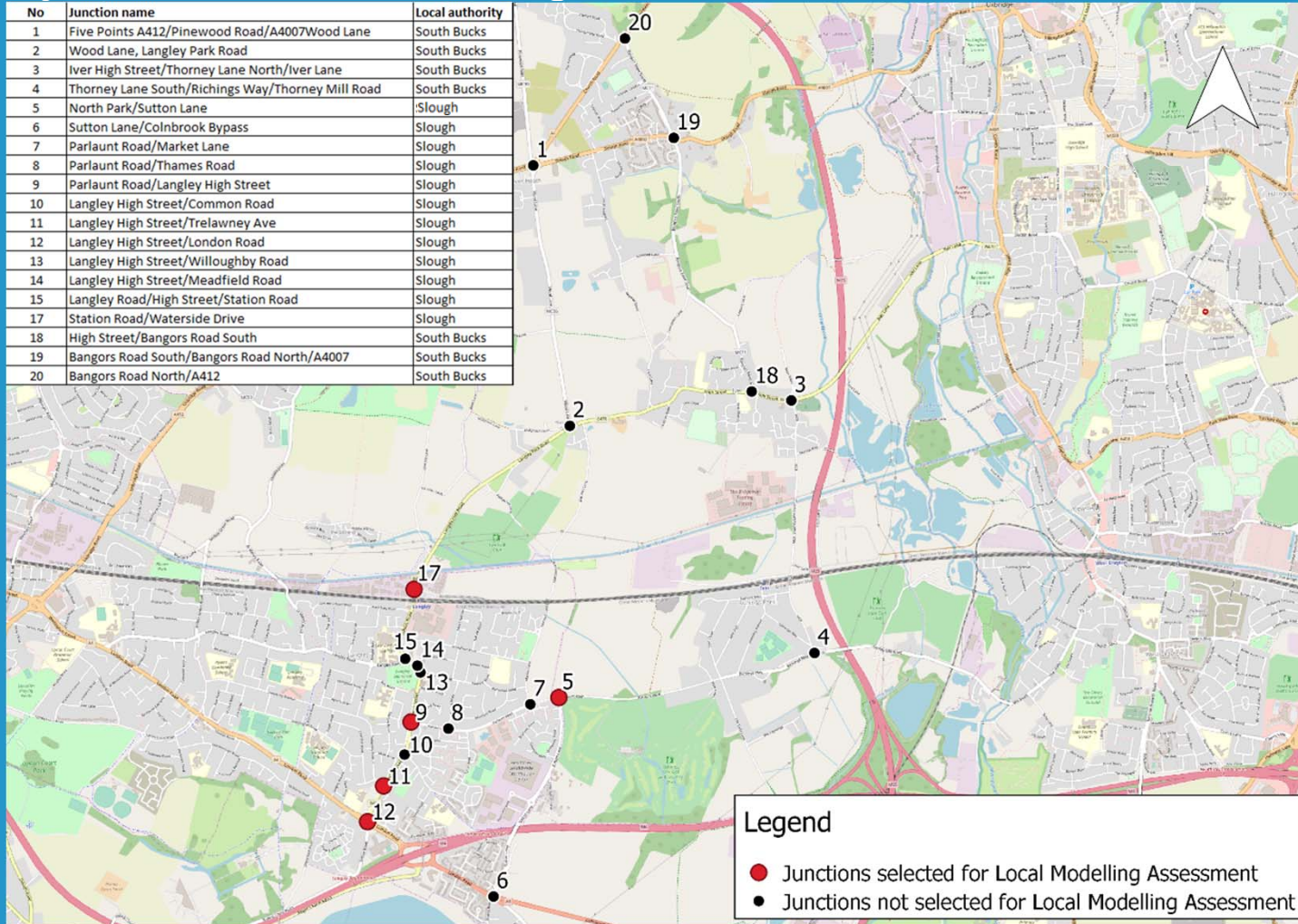




# Western Rail Link to Heathrow (WRLtH)

## Selected junctions for local modelling

No	Junction name	Local authority
1	Five Points A412/Pinewood Road/A4007Wood Lane	South Bucks
2	Wood Lane, Langley Park Road	South Bucks
3	Iver High Street/Thorney Lane North/Iver Lane	South Bucks
4	Thorney Lane South/Richings Way/Thorney Mill Road	South Bucks
5	North Park/Sutton Lane	Slough
6	Sutton Lane/Colnbrook Bypass	Slough
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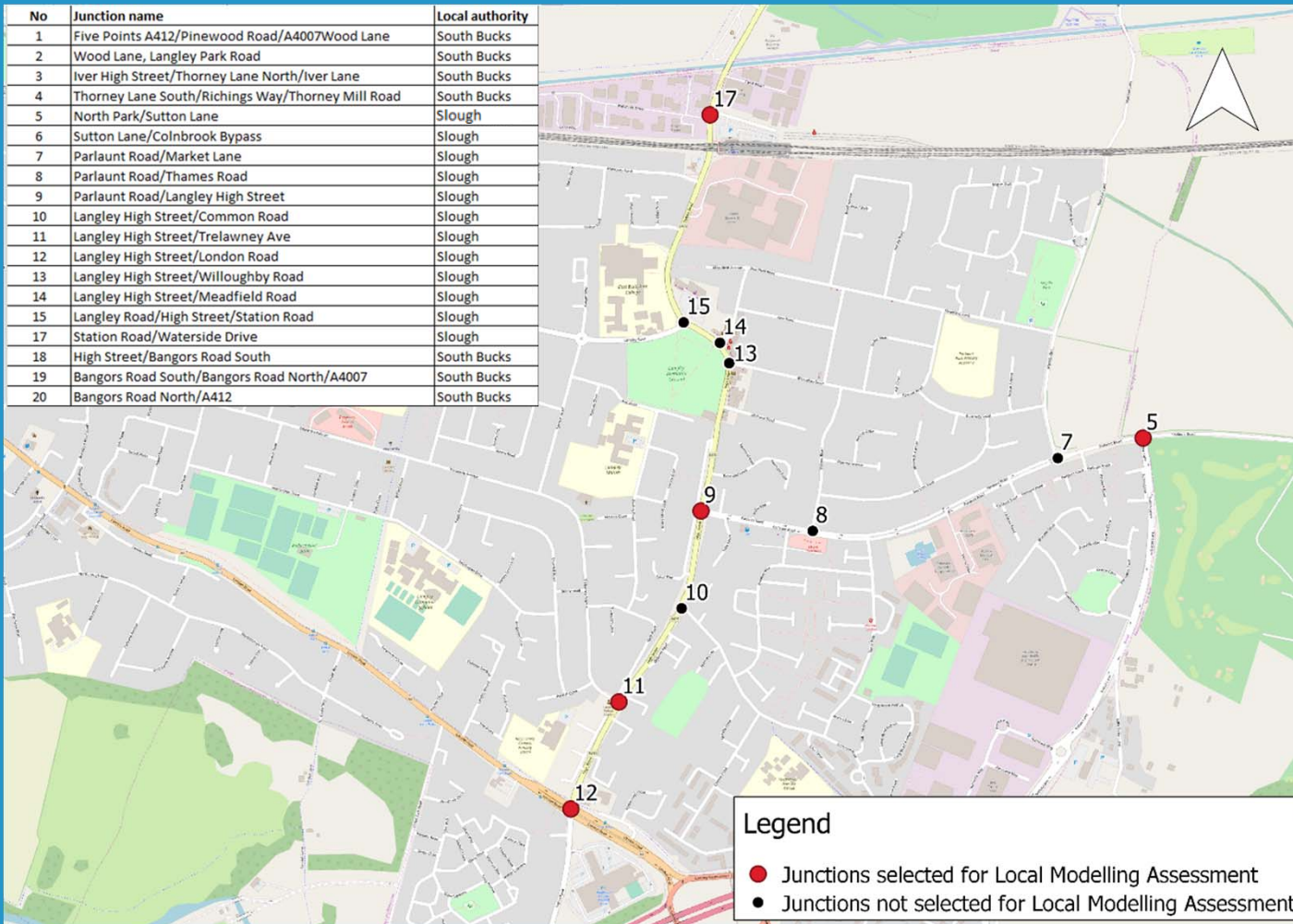


# Western Rail Link to Heathrow (WRLtH)



## Selected junctions for local modelling (Langley area)

No	Junction name	Local authority
1	Five Points A412/Pinewood Road/A4007/Wood Lane	South Bucks
2	Wood Lane, Langley Park Road	South Bucks
3	Iver High Street/Thorney Lane North/Iver Lane	South Bucks
4	Thorney Lane South/Richings Way/Thorney Mill Road	South Bucks
5	North Park/Sutton Lane	Slough
6	Sutton Lane/Colnbrook Bypass	Slough
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17	Station Road/Waterside Drive	Slough
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19	Bangors Road South/Bangors Road North/A4007	South Bucks
20	Bangors Road North/A412	South Bucks



**Legend**

- Junctions selected for Local Modelling Assessment
- Junctions not selected for Local Modelling Assessment



# Western Rail Link to Heathrow



Website: [networkrail.co.uk/westernraillinktoheathrow](http://networkrail.co.uk/westernraillinktoheathrow)

Email: [westernraillinktoheathrow@networkrail.co.uk](mailto:westernraillinktoheathrow@networkrail.co.uk)

## Sutton Lane/North Park/Parlaunt Road Junction





## Sutton Lane/North Park/Parlaunt Road Junction – Modelled Flows

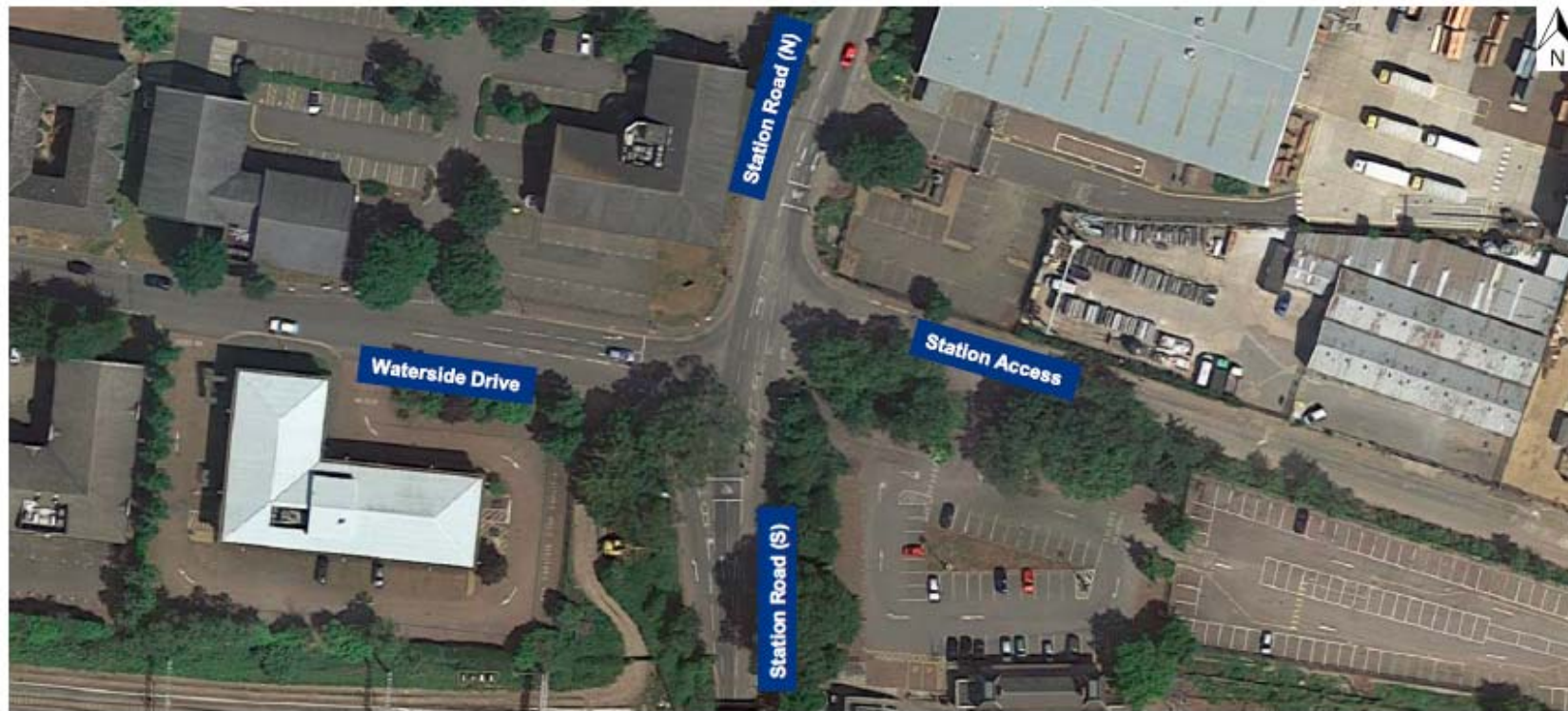


Overall Junction Flow	Peaks	2022 without scheme	2022 with scheme	2028 without scheme	2028 with scheme
	AM	1762	1444 (-318)	1743	1369 (-374)
	PM	1763	1366 (-397)	1771	1383 (-388)

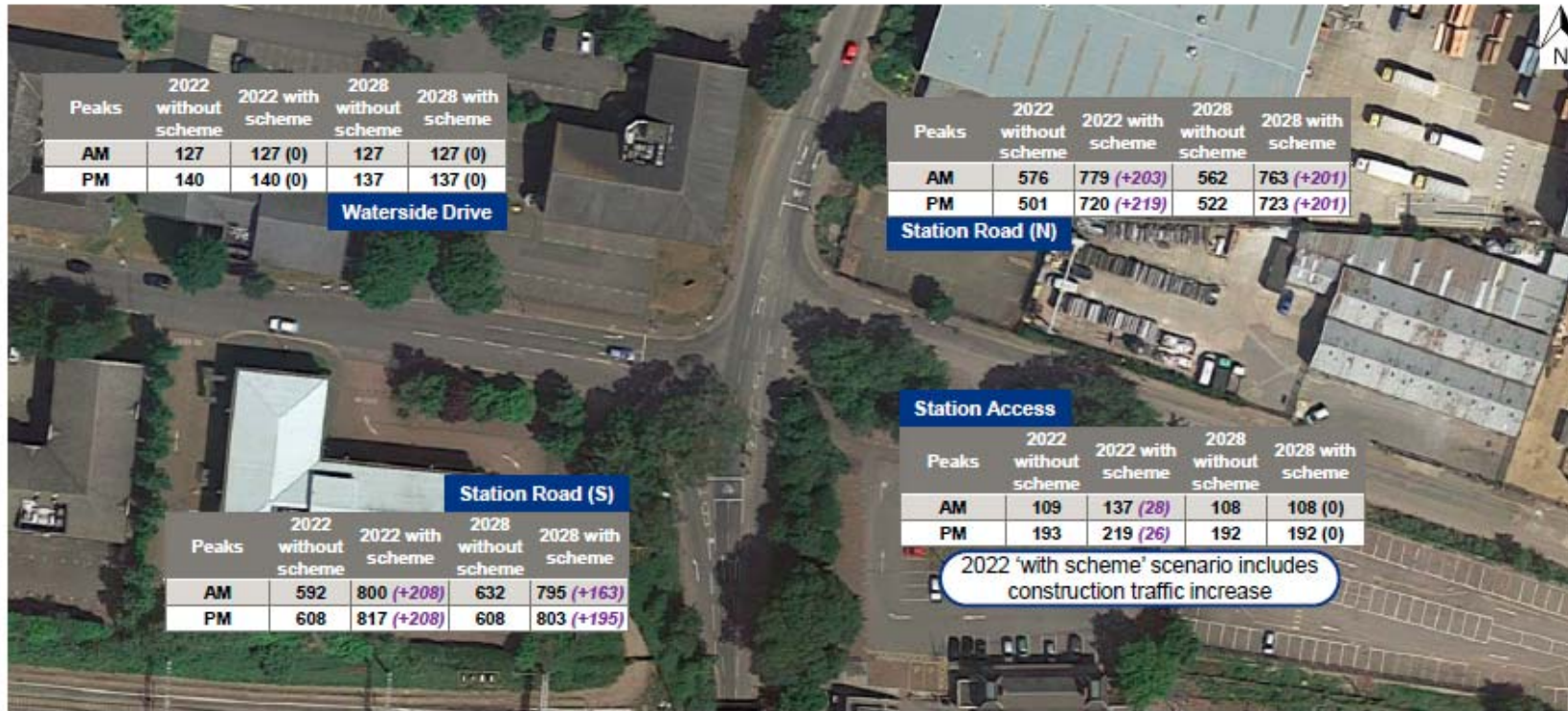




## Station Road/Waterside Drive Junction



## Station Road/Waterside Drive Junction



Overall Junction Flow	Peaks	2022 without scheme	2022 with scheme	2028 without scheme	2028 with scheme
	AM	1404	1815 (+411)	1429	1793 (+364)
	PM	1442	1869 (+427)	1460	1856 (+396)





## Langley High Street/Parlaunt Road



## Langley High Street/Parlaunt Road – Traffic Flows



Overall Junction Flow	Peaks	2022 without scheme	2022 with scheme	2028 without scheme	2028 with scheme
	AM	789	927 (+138)	806	919 (+113)
	PM	631	737 (+106)	625	740 (+115)

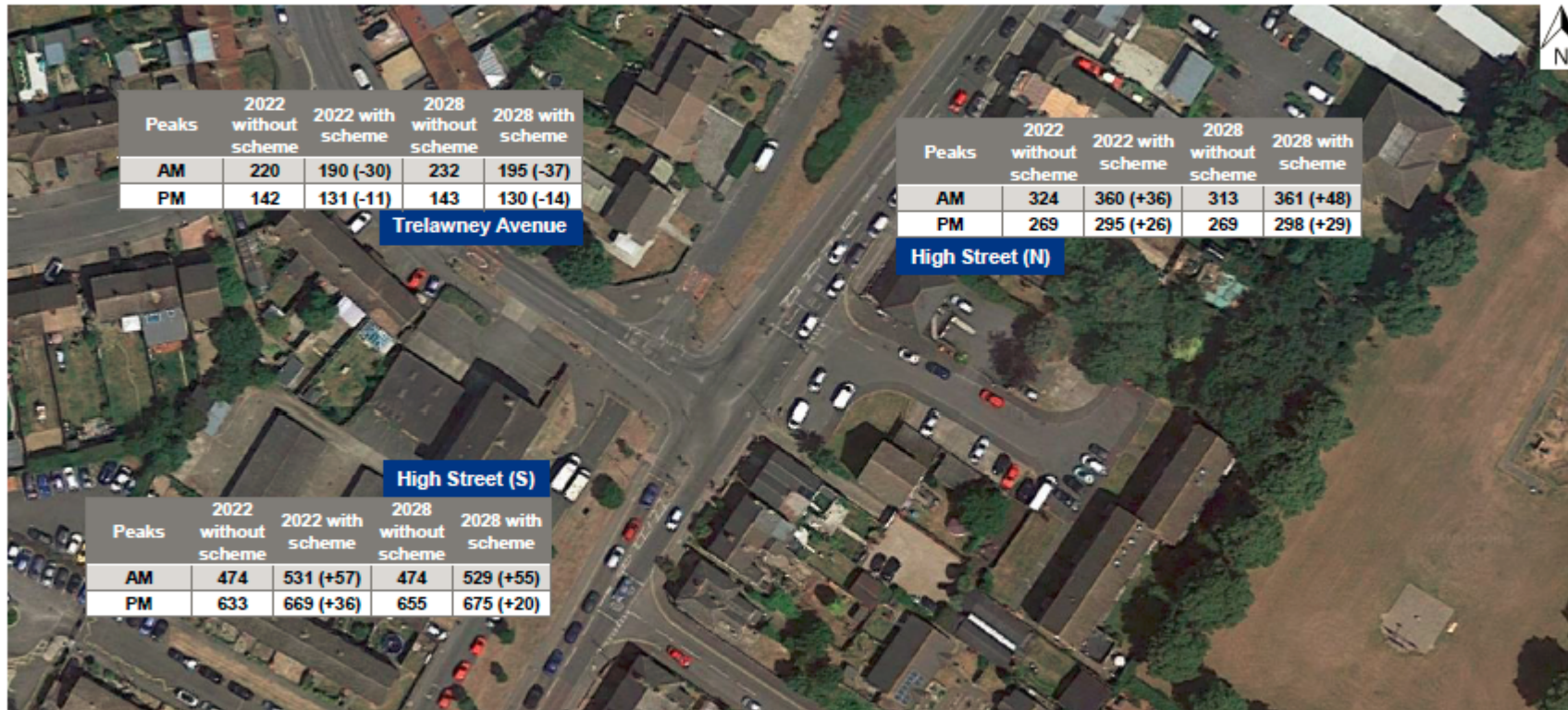




## Langley High Street/Trelawney Avenue



## Langley High Street/Trelawney Avenue – Traffic Flows



Overall Junction Flow	Peaks	2022 without scheme	2022 with scheme	2028 without scheme	2028 with scheme
	AM	1017	1081 (+64)	1019	1084 (+65)
	PM	1044	1095 (+51)	1067	1103 (+36)





## A4 London Road/High Street



## A4 London Road/High Street – Junction Flow



Overall Junction Flow	Peaks	2022 without scheme	2022 with scheme	2028 without scheme	2028 with scheme
	AM	2440	2535 (+95)	2458	2553 (+96)
	PM	2594	2662 (+68)	2657	2685 (+28)





### Modelling Assessment junction summary

- Sutton Lane/North Park/Parlaunt Road– Over capacity in ‘without scheme’, however mitigated with CEMEX design
- Waterside Drive/Station Road – Over capacity in ‘with scheme’ – anticipated to be mitigated with signal time changes
- Langley High Street /Parlaunt Road – Under capacity in all scenarios
- Langley High Street /Trelawney Avenue – Under capacity in all scenarios, marginal scheme impact on queue levels in ‘with scheme’, therefore not anticipating significant mitigations
- A4 London Road / Langley High Street – Under capacity in all scenarios, marginal scheme impact on queue levels in ‘with scheme’, therefore not anticipating significant mitigations.
- Alternatively s106 contribution in lieu of other mitigations with equivalent effect.



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