

**MK East Local Stakeholder Group
Briefing Note 26/09/18
Transport Modelling**

- Traffic modelling work done to support Plan:MK, with emphasis on MKE SUE
- Why? (i) necessary (ii) informed estimates (iii) consistent – good for comparisons
- But it is strategic – average conditions, wider area, corridors, wider interactions. More localised detailed analysis will follow
- Main results and future work

- Separate AM/PM/Inter-Peak models. Highway and basic Public Transport element
- Base 2016: Calibration based on DfT guidelines
- Forecast to 2031:
 - Reference Case – committed development/schemes (includes Tickford Fields/Olney NP sites); 'Benchmark' scenario
 - Plan:MK Scen 2, 3,000 homes and 6,300 jobs plus M1 bridge
 - Plan:MK Scen 2b, 5,000 homes and 6,300 jobs plus M1 bridge
 - Plan:MK Scen 2b v2 DS, as 2b above plus some mitigation

Model generally replicates current conditions well

Local congestion AM Peak:

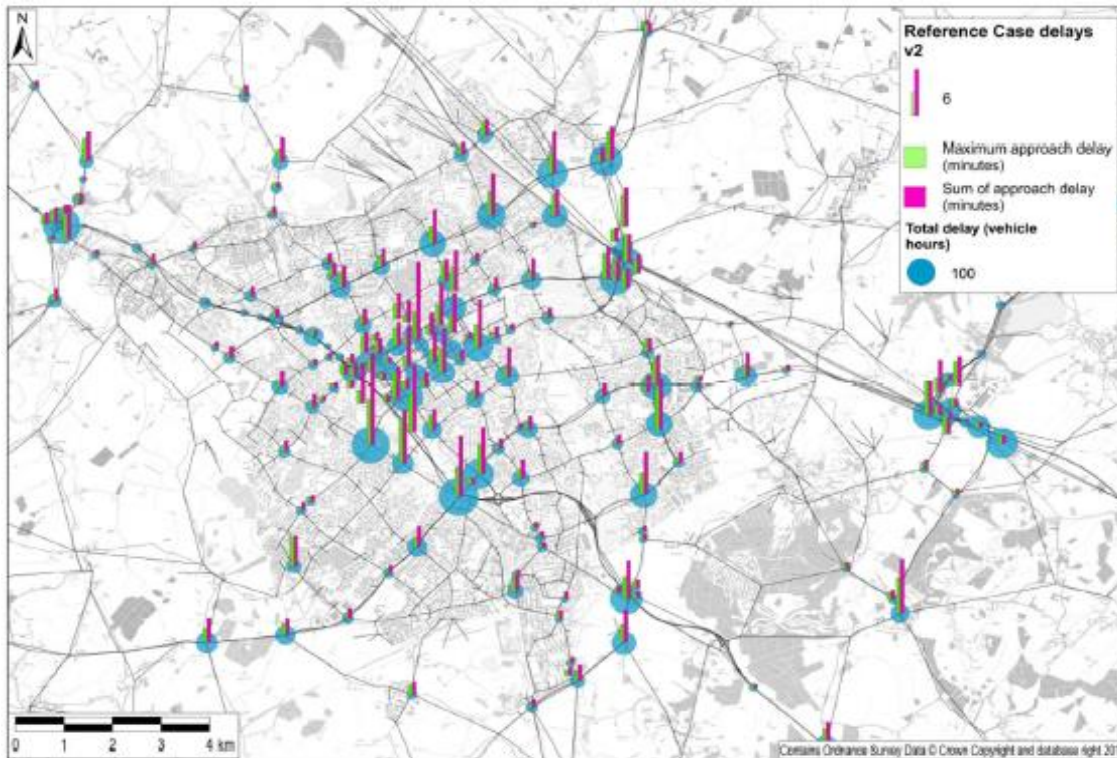
- A509 and A422 south-westbound at Renny Lodge, Tickford, Marsh End and Blakelands roundabouts
- Willen Road southbound
- Queuing around M1 J14

Local congestion PM Peak:

- A509 and A422 north-eastbound at Renny Lodge, Tickford, Marsh End and Blakelands roundabouts
- A509 and Childs Way approaches to Northfield Roundabout and J14

Reference Case 2031 Conditions

Junction Delays in 2031 Reference Case (Worst of AM/PM)

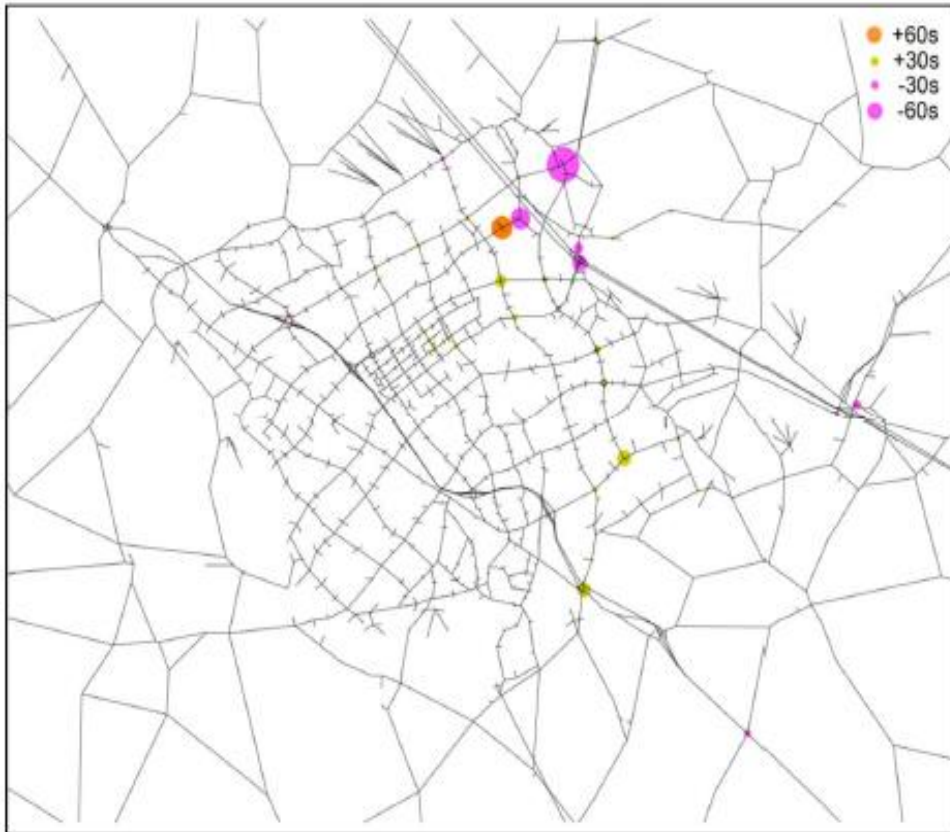


Compared to current conditions there is a general slight worsening:

- The A509 links are more overloaded and more junctions along the A422 to the west become over-capacity
- M1 J14 shows a greater level of over-capacity with further stress at Northfield Roundabout

Scenario 2 2031 Conditions

Changes in Junction Delays in 2031 between Reference Case and Scenario 2



3,000 dwellings and 6,300 jobs at MKE and a new M1 bridge and distributor roads

- Main impacts of additional traffic largely mitigated by new road infrastructure including bridge
- New road infrastructure helps alleviate some pressures on M1 J14
- However higher forecast flows result additional congestion modelled at junctions along the A422, V10 and V11 corridors.

Scenario 2b 2031 Conditions: M1 Crossings

Comparison of 2031 Traffic Flows between Reference Case and Scenario 2b

Comparison of flows from East of M1 towards MK (car/hr)

Time Period	Scenario	A422	Willen Road	New Bridge	J14 through Traffic	Total
AM	Reference Case	1164	1651	n/a	1195	4010
	Scenario 2b	1110	1576	1666	1445	5797
	<i>Difference</i>	-54	-75	<i>n/a</i>	250	1787
PM	Reference Case	1066	768	n/a	815	2649
	Scenario 2b	1210	467	856	802	3335
	<i>Difference</i>	144	-301	<i>n/a</i>	-13	686

Comparison of flows from MK towards East of M1 (car/hr)

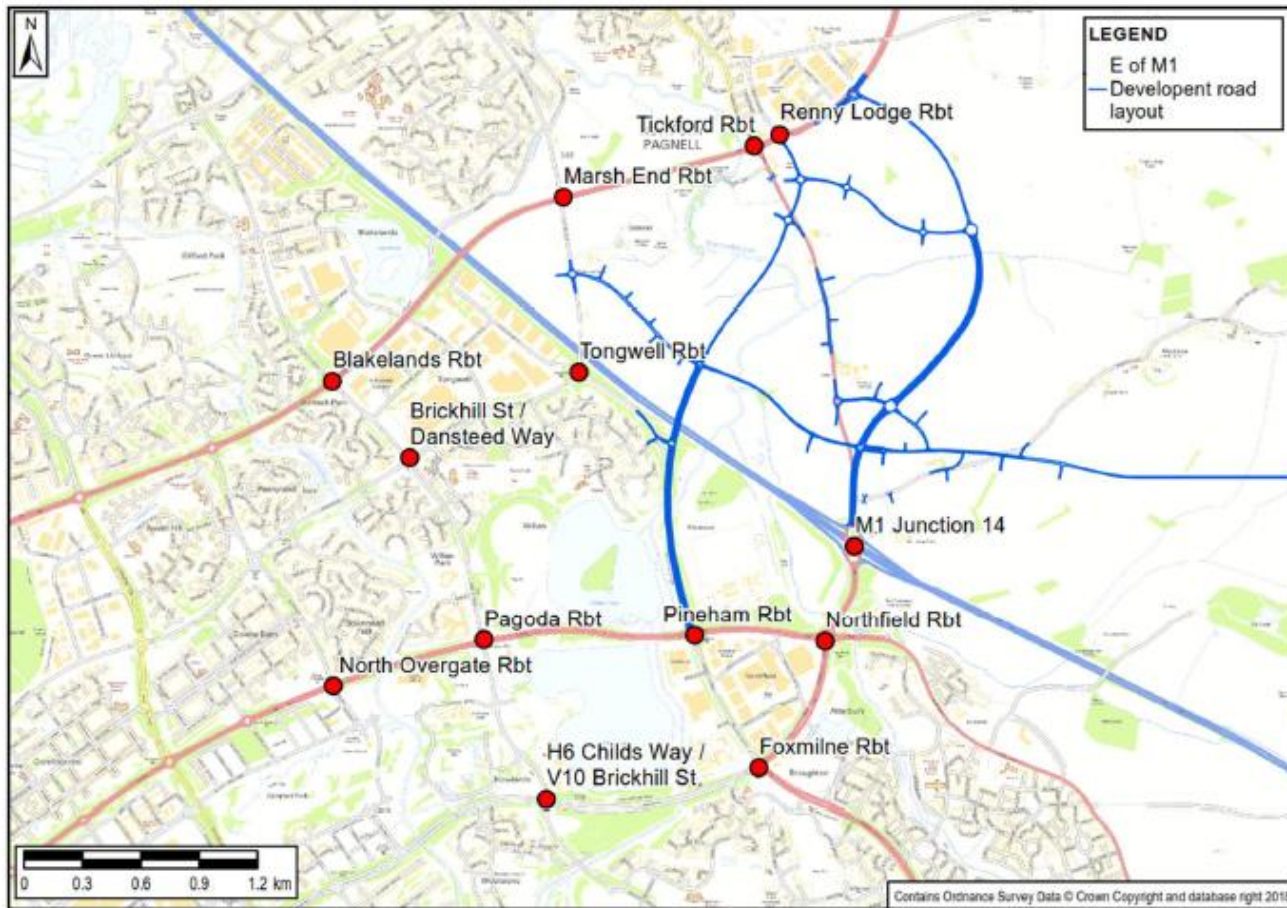
Time Period	Scenario	A422	Willen Road	New Bridge	J14 through Traffic	Total
AM	Reference Case	1037	559	n/a	154	1750
	Scenario 2b	977	343	593	323	2236
	<i>Difference</i>	-60	-216	<i>n/a</i>	169	486
PM	Reference Case	1714	1148	n/a	307	3169
	Scenario 2b	1790	985	1545	62	4382
	<i>Difference</i>	76	-163	<i>n/a</i>	-245	1213

5,000 dwellings and 6,300 jobs at MKE and a new M1 bridge and distributor roads

- New bridge takes 1,500-1,700 car/hr
- Total increase of 1,800 w/b AM and 1,200 e/b PM
- Some relief to A422 and Willen Road
- Increases still occur across M1 J14
- New bridge is needed to maintain current conditions at other crossings

Scenario 2b 2031: Mitigation

Junctions Considered for Mitigation



Scenario 2b 2031 Conditions with Mitigation

Comparison of 2031 Traffic Conditions between Scenario 2b and Scenario 2b plus Mitigation

5,000 dwellings at MKE and a new M1 bridge plus mitigation

- A reduction in AM delays on A422
- A reduction in AM delay on the M1 J14 northbound off-slip
- An increase in AM delays at the westbound approaches to the junctions with V9 Overstreet
- A reduction in PM delay on the northbound A509 approach to M1 J14
- An increase in PM delay on the northbound V10 approach to Pagoda roundabout

In general:

- Mitigation facilitates east-west movements but these can cause increased delays on north-south movements
- Some congestion is moved to junctions further west

Scenario 2b 2031 with Mitigation: M1 Crossings

Comparison of 2031 Traffic Flows between Scenario 2b and Scenario 2b plus Mitigation

Comparison of flows from East of M1 towards MK (PCU/hr)

Time Period	Scenario	A422	Willen Road	New Bridge	J14 through Traffic	Total
AM	Scenario 2b DM	1102	1567	1665	1433	5767
	Scenario 2b DS	1145	1551	1652	1359	5707
	Difference	43	-16	-13	-74	-60
PM	Scenario 2b DM	1226	469	924	840	3459
	Scenario 2b DS	1194	481	985	788	3448
	Difference	-32	12	61	-52	-11

5,000 dwellings and 6,300 jobs at MKE and a new M1 bridge and distributor roads plus mitigation

Comparison of flows from MK towards East of M1 (PCU/hr)

Time Period	Scenario	A422	Willen Road	New Bridge	J14 through Traffic	Total
AM	Scenario 2b DM	978	345	602	320	2245
	Scenario 2b DS	1025	338	585	317	2265
	Difference	47	-7	-17	-3	20
PM	Scenario 2b DM	1694	958	1555	54	4261
	Scenario 2b DS	1785	967	1350	89	4191
	Difference	91	9	-205	35	-70

- Little difference to M1 crossings in total or individually
- Slight overall decrease as a result of mitigation

Conclusions to Date

- The mitigation measures cannot be looked at solely on a junction by junction basis - the MK grid widens the impacts
- The measures generally help reduce the delays for traffic travelling between the M1 and central Milton Keynes
- There is also a relationship between increasing east-west flows causing slightly increased delays on north-south routes
- The new M1 bridge does not significantly reduce traffic on the other M1 crossing points at A422, Willen Road and M1 J14 through-traffic; however, it does carry substantial traffic flows that would otherwise put increased pressure on the existing crossings in all Scenario 2 variants

Further scenarios being considered:

- No new bridge, Willen Road improvements
- Effects of Park & Ride
- Alternative MKE site layouts
- Sensitivity test