

Appendix F – Traffic Modelling Report

Hereford Eastern River Crossing (ERiC) (SOC)

Herefordshire Council

July 2023

Quality information

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Revision History

Revision	Revision date	Details	Authorized	Name	Position
Rev1	6/12/2023	Traffic flow tables	MH	Maurice Houkes	Associate Director

Distribution List

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1. Introduction

- 1.1 Herefordshire Council is currently progressing the development of an Eastern River Crossing (ERiC) for the city of Hereford. AECOM was commissioned in October 2022 to undertake an initial piece of work assessing options for an ERiC as part of a Strategic Outline Case (SOC), in accordance with the process set out in the Department for Transport's (DfT) Transport Business Case guidance.

Hereford Transport Model (HTM)

- 1.2 For a scheme of this nature, it is expected that a key part of the economic dimension will be transport-related impacts derived from a suitable transport model. The Hereford Transport Model (HTM) is a transport model suite, developed in March 2016.
- 1.3 HTM is a strategic multi-modal transport model of Hereford which has been developed in accordance with the principles set out in the DfT's Transport Analysis Guidance (TAG). It comprises of a highway assignment model component developed in the UK industry-standard software SATURN, and a supporting mode-choice model developing in the industry-standard software VISUM. It is understood that the Variable Demand Model component is a conventional incremental model with a nested hierarchy consistent with the guidance given in TAG Unit M2.
- 1.4 The HTM has a base year of 2016, and represents forecast years of 2032, 2041 and 2051 using industry standard software, growth factors, and uncertainty logs.
- 1.5 The model represents three time periods of an average weekday during school term time:
- AM (peak hour 08:00 - 09:00)
 - Interpeak (average hour for 10:00 – 15:00)
 - PM (peak hour 17:00-18:00)
- 1.6 The highway assignment model considers three different vehicle classes (car, LGV, OGV1, and OGV2) and eleven user classes depending on the trip purpose. The public transport assignment model considers bus and rail, and active mode assignment model considers sub-modes of walk and cycle.

Eastern River Crossing (ERiC)

- 1.7 The proposed Eastern River Crossing (ERiC) has been represented in the transport model as a single carriageway link open to all traffic with roundabout connecting to the existing road network at B4399 (Rotherwas), Hampton Park Road and A438 (between Hereford and Lugwardine).
- 1.8 To assess the impact of the proposed ERiC, the scheme has been represented using the 2032 forecast year of HTM. The modelling has been undertaken in the highway assignment model. This approach is considered proportionate for the SOC stage, it will include the re-distribution impacts but not any changes related to mode of travel or time of travel. The alignment modelled represents the proposed ERiC at a strategic level. HTM is not an appropriate tool for understanding the impact of detailed alignment differences, hence the modelling undertaken illustrates the strategic impacts of both the proposed alignments.
- 1.9 The proposed ERiC has been considered with two speed limits, forming two Do Something scenarios:

- Do Something A (DSA) – 30mph
 - Do Something B (DSB) – 40mph
- 1.10 The strategic modelling results summarised below, provide outputs from 2032 DSA and 2032 DSB, and compare them against the 2032 Do Nothing scenario, to understand the impact of the scheme.
- 1.11 An economic appraisal has not been undertaken at the SOC stage. However, the changes in traffic flow, journey times and vehicle kilometres have been analysed to determine the potential impact of the proposed scheme.

Flow Comparisons

- 1.12 A comparison of the base model and the 2032 DN to show predicted change without the scheme, V/C plots also included (Figures 1-1 to 1-4).
- 1.13 Flow comparisons comparing the ERiC DSA to the DN and comparing the ERiC DSB to the DN. Traffic flow changes are provided for the locations shown in Figure 1-5, in Tables 1-1 to 1-4. Flow difference outputs are included for the AM and PM peaks (Figures 1-6 to 1-9).
- 1.14 These show the clear impact of the ERiC with large reductions of flow traveling through the centre of Hereford and increases in flow to the roads in the South and East of the centre.

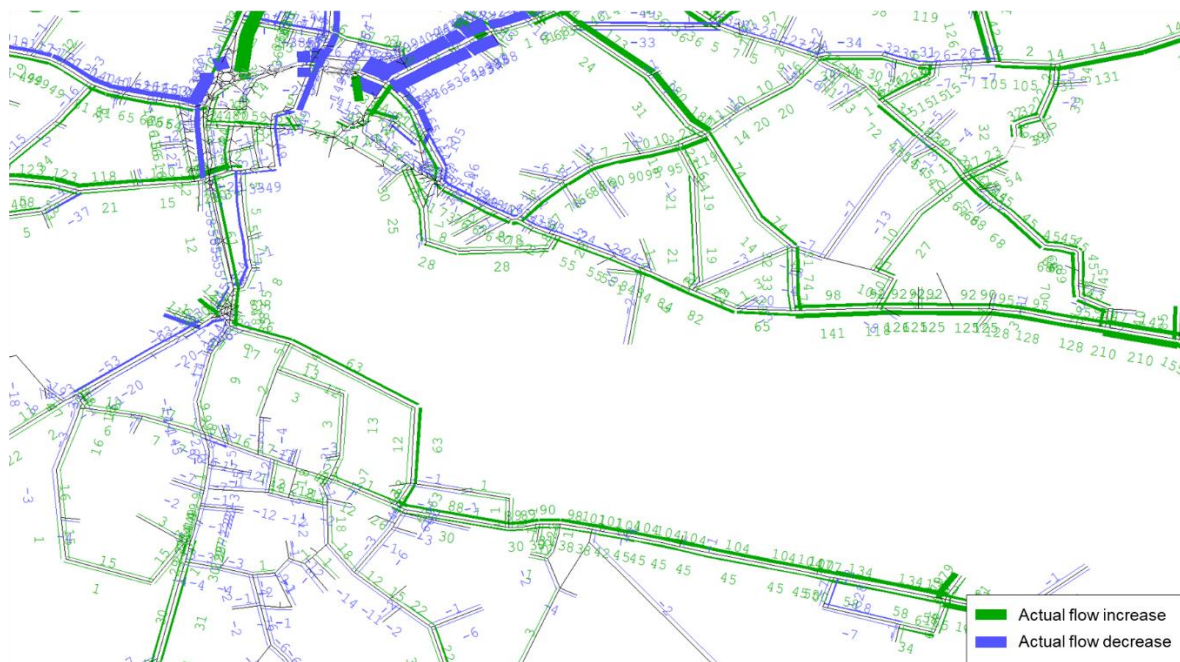


Figure 1-1 Flow Comparison of Base vs. DN 2032 AM

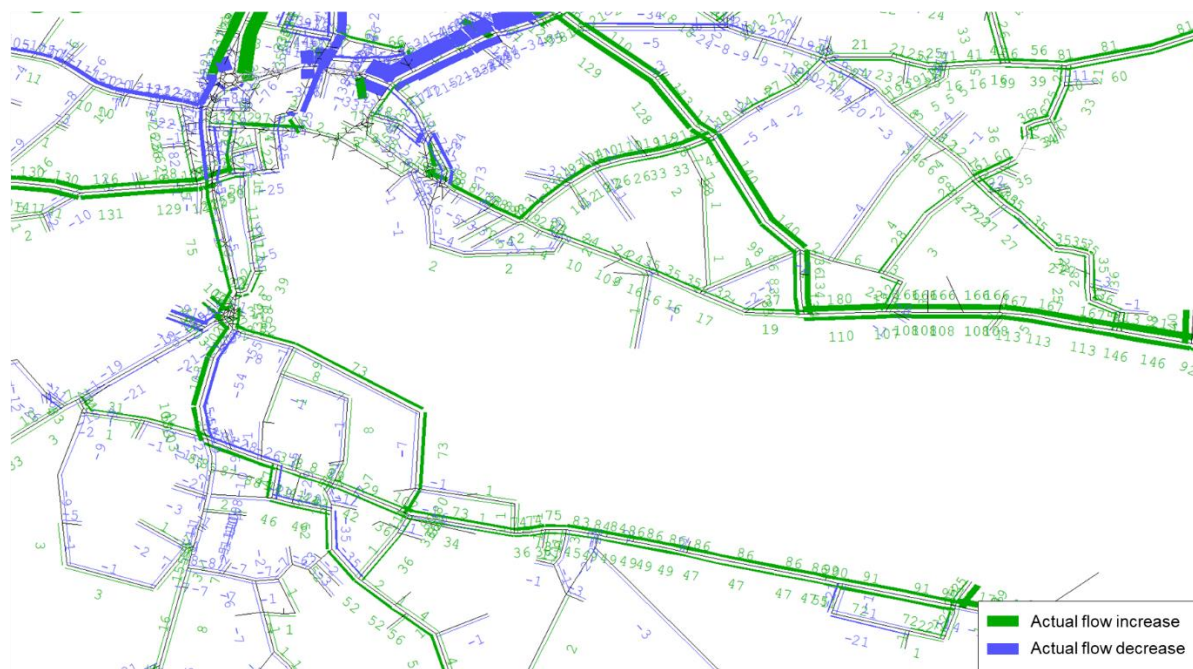


Figure 1-2 Flow Comparison of Base vs. DN 2032 PM

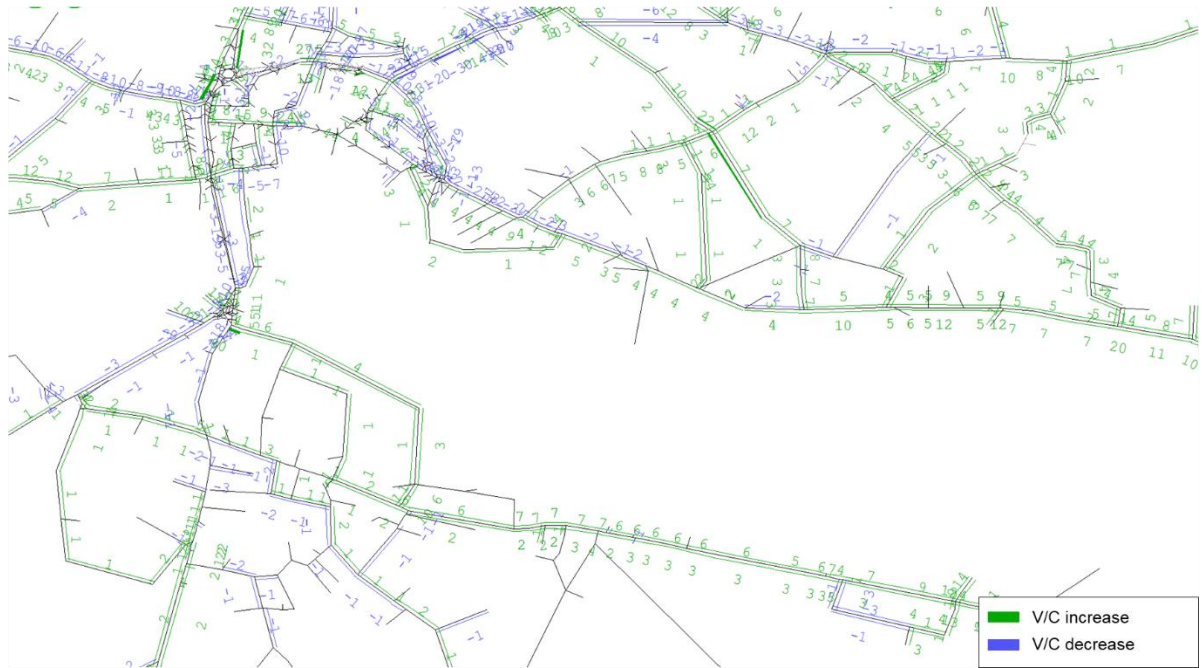


Figure 1-3 V/C Comparison of Base vs. DN 2032 AM



Figure 1-4 V/C Comparison of Base vs. DN 2032 PM

Table 1-1 Traffic Flow Comparison of ERiC (DSA) vs. DN 2032 AM

Ref.	Description	Direction	Do Nothing	ERiC (DSA)	Difference	% Change
A	A49, Victoria Street	Northbound	1794	1676	-119	-7%
		Southbound	1635	1274	-361	-22%
B	Eastern River Crossing	Northbound	n/a	733	n/a	n/a
		Southbound	n/a	895	n/a	n/a
C	Southern Link Road	Eastbound	n/a	n/a	n/a	n/a
		Westbound	n/a	n/a	n/a	n/a
D	B4399 Rotherwas Link	Eastbound	314	590	276	88%
		Westbound	116	363	247	212%
E	B4399, Holme Lacy Road	Eastbound	454	190	-265	-58%
		Westbound	530	245	-285	-54%
F	B4399, Bridge Road	Eastbound	588	187	-401	-68%
		Westbound	584	196	-388	-66%
G	B4224, Eign Road	Westbound	514	536	22	4%
		Eastbound	218	247	29	13%
H	B4224, Hampton Bishop	Eastbound	383	325	-59	-15%
		Westbound	650	573	-77	-12%
I	A49, Ross Road	Northbound	675	595	-80	-12%
		Southbound	549	493	-56	-10%
J	Holme Lacy Road	Eastbound	721	642	-80	-11%
		Westbound	301	386	85	28%
K	A465, Belmont Road	Northbound	655	615	-39	-6%
		Southbound	660	615	-44	-7%
L	Minor Road, Near Callow	Northbound	69	104	35	51%
		Southbound	36	89	52	144%
M	A465, Allensmore	Northbound	333	310	-23	-7%
		Southbound	305	264	-41	-14%
N	B4349, Clehonger	Eastbound	239	242	3	1%
		Westbound	187	197	10	6%
O	B4348, Winnal	Eastbound	106	116	11	10%
		Westbound	91	120	28	31%
P	B4349, Kingstone	Eastbound	126	124	-2	-2%
		Westbound	87	81	-6	-7%
Q	B4352, Madley	Eastbound	241	228	-13	-5%
		Westbound	247	250	3	1%
R	A438, Sugwas Pool	Eastbound	397	381	-17	-4%
		Westbound	291	274	-18	-6%
S	A438, Kings Acre Road	Eastbound	675	690	16	2%
		Westbound	487	513	26	5%
T	A4103, Stretton Sugwas	Eastbound	648	626	-22	-3%
		Westbound	464	431	-33	-7%
U	A4110, Canon Pyon Road	Northbound	235	226	-9	-4%
		Southbound	338	333	-5	-1%

Ref.	Description	Direction	Do Nothing	ERiC (DSA)	Difference	% Change
V	A49, Pipe and Lyde	Northbound	616	618	2	0%
		Southbound	847	845	-2	0%
W	A465, Eau Withington	Northbound	164	179	15	9%
		Southbound	294	306	12	4%
X	A4103, Withington	Eastbound	454	511	57	13%
		Westbound	626	660	34	5%
Y	A438, Lugwardine	Eastbound	436	675	239	55%
		Westbound	680	912	232	34%
Z	A438, Ledbury Road	Eastbound	219	220	1	1%
		Westbound	656	639	-17	-3%
AA	A465, Withington Marsh	Northbound	216	278	63	29%
		Southbound	386	438	52	14%
AB	A4103, Whitestone	Eastbound	405	451	46	11%
		Westbound	462	541	79	17%
AC	A438, Dormington	Eastbound	497	447	-50	-10%
		Westbound	690	637	-54	-8%
AD	Clay Hill Pit, Dormington	Northbound	274	83	-192	-70%
		Southbound	357	139	-218	-61%
AE	A49, Ross Road, Callow	Northbound	715	842	128	18%
		Southbound	509	614	105	21%

Table 1-2 Traffic Flow Comparison of ERiC (DSA) vs. DN 2032 PM

Ref.	Description	Direction	Do Nothing	ERiC (DSA)	Difference	% Change
A	A49, Victoria Street	Northbound	1753	1469	-284	-16%
		Southbound	1915	1732	-184	-10%
B	Eastern River Crossing	Northbound	n/a	839	n/a	n/a
		Southbound	n/a	585	n/a	n/a
C	Southern Link Road	Eastbound	n/a	n/a	n/a	n/a
		Westbound	n/a	n/a	n/a	n/a
D	B4399 Rotherwas Link	Eastbound	117	382	265	227%
		Westbound	443	638	195	44%
E	B4399, Holme Lacy Road	Eastbound	551	233	-317	-58%
		Westbound	406	238	-168	-41%
F	B4399, Bridge Road	Eastbound	605	188	-418	-69%
		Westbound	485	230	-255	-53%
G	B4224, Eign Road	Westbound	204	220	17	8%
		Eastbound	343	339	-4	-1%
H	B4224, Hampton Bishop	Eastbound	448	453	5	1%
		Westbound	443	367	-76	-17%
I	A49, Ross Road	Northbound	623	565	-58	-9%
		Southbound	643	566	-77	-12%
J	Holme Lacy Road	Eastbound	318	373	55	17%
		Westbound	605	636	31	5%
K	A465, Belmont Road	Northbound	710	643	-67	-9%
		Southbound	665	656	-9	-1%
L	Minor Road, Near Callow	Northbound	43	101	59	137%
		Southbound	73	102	29	39%
M	A465, Allensmore	Northbound	416	364	-52	-12%
		Southbound	340	318	-23	-7%
N	B4349, Clehonger	Eastbound	192	198	7	3%
		Westbound	256	265	9	4%
O	B4348, Winnal	Eastbound	153	181	28	18%
		Westbound	168	183	14	8%
P	B4349, Kingstone	Eastbound	99	94	-5	-5%
		Westbound	108	105	-2	-2%
Q	B4352, Madley	Eastbound	206	212	6	3%
		Westbound	227	223	-3	-2%
R	A438, Sugwas Pool	Eastbound	369	355	-15	-4%
		Westbound	470	455	-15	-3%
S	A438, Kings Acre Road	Eastbound	508	524	15	3%
		Westbound	673	677	4	1%
T	A4103, Stretton Sugwas	Eastbound	504	478	-26	-5%
		Westbound	583	569	-14	-2%
U	A4110, Canon Pyon Road	Northbound	413	403	-10	-2%
		Southbound	214	216	2	1%

Ref.	Description	Direction	Do Nothing	ERiC (DSA)	Difference	% Change
V	A49, Pipe and Lyde	Northbound	687	674	-13	-2%
		Southbound	719	715	-5	-1%
W	A465, Eau Withington	Northbound	289	269	-20	-7%
		Southbound	208	203	-5	-2%
X	A4103, Withington	Eastbound	509	621	113	22%
		Westbound	536	580	44	8%
Y	A438, Lugwardine	Eastbound	541	775	233	43%
		Westbound	464	657	192	41%
Z	A438, Ledbury Road	Eastbound	395	393	-2	0%
		Westbound	375	336	-39	-10%
AA	A465, Withington Marsh	Northbound	309	373	64	21%
		Southbound	256	305	49	19%
AB	A4103, Whitestone	Eastbound	446	492	46	10%
		Westbound	477	495	17	4%
AC	A438, Dormington	Eastbound	567	528	-39	-7%
		Westbound	499	477	-22	-4%
AD	Clay Hill Pit, Dormington	Northbound	290	107	-183	-63%
		Southbound	261	94	-166	-64%
AE	A49, Ross Road, Callow	Northbound	526	634	108	21%
		Southbound	740	822	82	11%

Table 1-3 Traffic Flow Comparison of ERiC (DSB) vs. DN 2032 AM

Ref.	Description	Direction	Do Nothing	ERiC (DSB)	Difference	% Change
A	A49, Victoria Street	Northbound	1794	1665	-129	-7%
		Southbound	1635	1189	-446	-27%
B	Eastern River Crossing	Northbound	n/a	782	n/a	n/a
		Southbound	n/a	1012	n/a	n/a
C	Southern Link Road	Eastbound	n/a	n/a	n/a	n/a
		Westbound	n/a	n/a	n/a	n/a
D	B4399 Rotherwas Link	Eastbound	314	611	298	95%
		Westbound	116	396	280	241%
E	B4399, Holme Lacy Road	Eastbound	454	190	-264	-58%
		Westbound	530	246	-284	-54%
F	B4399, Bridge Road	Eastbound	588	183	-405	-69%
		Westbound	584	188	-396	-68%
G	B4224, Eign Road	Westbound	514	534	20	4%
		Eastbound	218	246	27	13%
H	B4224, Hampton Bishop	Eastbound	383	326	-57	-15%
		Westbound	650	590	-59	-9%
I	A49, Ross Road	Northbound	675	581	-94	-14%
		Southbound	549	473	-77	-14%
J	Holme Lacy Road	Eastbound	721	614	-107	-15%
		Westbound	301	414	112	37%
K	A465, Belmont Road	Northbound	655	608	-47	-7%
		Southbound	660	621	-39	-6%
L	Minor Road, Near Callow	Northbound	69	105	36	52%
		Southbound	36	89	53	145%
M	A465, Allensmore	Northbound	333	307	-26	-8%
		Southbound	305	268	-37	-12%
N	B4349, Clehonger	Eastbound	239	246	7	3%
		Westbound	187	199	12	7%
O	B4348, Winnal	Eastbound	106	117	11	10%
		Westbound	91	120	29	31%
P	B4349, Kingstone	Eastbound	126	124	-2	-2%
		Westbound	87	77	-10	-12%
Q	B4352, Madley	Eastbound	241	226	-15	-6%
		Westbound	247	252	5	2%
R	A438, Sugwas Pool	Eastbound	397	378	-19	-5%
		Westbound	291	268	-23	-8%
S	A438, Kings Acre Road	Eastbound	675	693	19	3%
		Westbound	487	505	18	4%
T	A4103, Stretton Sugwas	Eastbound	648	624	-24	-4%
		Westbound	464	436	-27	-6%
U	A4110, Canon Pyon Road	Northbound	235	224	-10	-4%
		Southbound	338	332	-6	-2%

Ref.	Description	Direction	Do Nothing	ERiC (DSB)	Difference	% Change
V	A49, Pipe and Lyde	Northbound	616	616	0	0%
		Southbound	847	837	-10	-1%
W	A465, Eau Withington	Northbound	164	192	28	17%
		Southbound	294	309	15	5%
X	A4103, Withington	Eastbound	454	524	69	15%
		Westbound	626	660	35	6%
Y	A438, Lugwardine	Eastbound	436	676	240	55%
		Westbound	680	930	250	37%
Z	A438, Ledbury Road	Eastbound	219	225	6	3%
		Westbound	656	639	-17	-3%
AA	A465, Withington Marsh	Northbound	216	295	79	37%
		Southbound	386	437	51	13%
AB	A4103, Whitestone	Eastbound	405	457	53	13%
		Westbound	462	562	100	22%
AC	A438, Dormington	Eastbound	497	433	-64	-13%
		Westbound	690	629	-61	-9%
AD	Clay Hill Pit, Dormington	Northbound	274	80	-195	-71%
		Southbound	357	134	-223	-62%
AE	A49, Ross Road, Callow	Northbound	715	845	130	18%
		Southbound	509	630	121	24%

Table 1-4 Traffic Flow Comparison of ERiC (DSB) vs. DN 2032 PM

Ref.	Description	Direction	Do Nothing	ERiC (DSB)	Difference	% Change
A	A49, Victoria Street	Northbound	1753	1430	-323	-18%
		Southbound	1915	1702	-214	-11%
B	Eastern River Crossing	Northbound	n/a	904	n/a	n/a
		Southbound	n/a	632	n/a	n/a
C	Southern Link Road	Eastbound	n/a	n/a	n/a	n/a
		Westbound	n/a	n/a	n/a	n/a
D	B4399 Rotherwas Link	Eastbound	117	420	304	260%
		Westbound	443	656	212	48%
E	B4399, Holme Lacy Road	Eastbound	551	233	-318	-58%
		Westbound	406	237	-169	-42%
F	B4399, Bridge Road	Eastbound	605	183	-422	-70%
		Westbound	485	223	-262	-54%
G	B4224, Eign Road	Westbound	204	220	17	8%
		Eastbound	343	336	-7	-2%
H	B4224, Hampton Bishop	Eastbound	448	457	10	2%
		Westbound	443	377	-66	-15%
I	A49, Ross Road	Northbound	623	549	-74	-12%
		Southbound	643	558	-85	-13%
J	Holme Lacy Road	Eastbound	318	374	56	18%
		Westbound	605	643	38	6%
K	A465, Belmont Road	Northbound	710	634	-77	-11%
		Southbound	665	656	-9	-1%
L	Minor Road, Near Callow	Northbound	43	111	68	159%
		Southbound	73	105	31	43%
M	A465, Allensmore	Northbound	416	358	-58	-14%
		Southbound	340	317	-23	-7%
N	B4349, Clehonger	Eastbound	192	199	7	4%
		Westbound	256	265	9	4%
O	B4348, Winnal	Eastbound	153	187	34	22%
		Westbound	168	182	14	8%
P	B4349, Kingstone	Eastbound	99	92	-7	-7%
		Westbound	108	105	-2	-2%
Q	B4352, Madley	Eastbound	206	212	6	3%
		Westbound	227	221	-6	-2%
R	A438, Sugwas Pool	Eastbound	369	353	-17	-4%
		Westbound	470	454	-15	-3%
S	A438, Kings Acre Road	Eastbound	508	523	15	3%
		Westbound	673	678	5	1%
T	A4103, Stretton Sugwas	Eastbound	504	478	-26	-5%
		Westbound	583	568	-14	-2%
U	A4110, Canon Pyon Road	Northbound	413	397	-16	-4%
		Southbound	214	216	1	1%

Ref.	Description	Direction	Do Nothing	ERiC (DSB)	Difference	% Change
V	A49, Pipe and Lyde	Northbound	687	661	-26	-4%
		Southbound	719	712	-8	-1%
W	A465, Eau Withington	Northbound	289	260	-29	-10%
		Southbound	208	200	-8	-4%
X	A4103, Withington	Eastbound	509	665	157	31%
		Westbound	536	580	44	8%
Y	A438, Lugwardine	Eastbound	541	791	249	46%
		Westbound	464	673	208	45%
Z	A438, Ledbury Road	Eastbound	395	392	-3	-1%
		Westbound	375	333	-42	-11%
AA	A465, Withington Marsh	Northbound	309	372	64	21%
		Southbound	256	308	52	20%
AB	A4103, Whitestone	Eastbound	446	498	53	12%
		Westbound	477	499	22	5%
AC	A438, Dormington	Eastbound	567	528	-39	-7%
		Westbound	499	476	-23	-5%
AD	Clay Hill Pit, Dormington	Northbound	290	97	-193	-66%
		Southbound	261	90	-171	-65%
AE	A49, Ross Road, Callow	Northbound	526	637	111	21%
		Southbound	740	831	91	12%

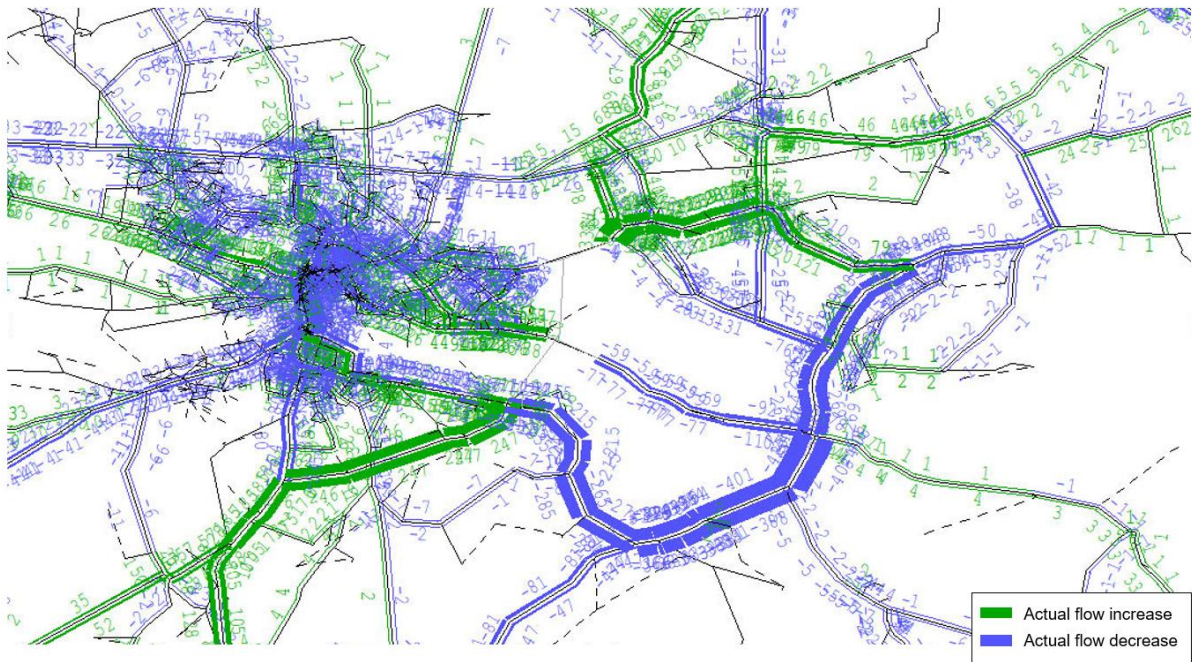


Figure 1-6 Flow Comparison of DSA vs. DN 2032 AM

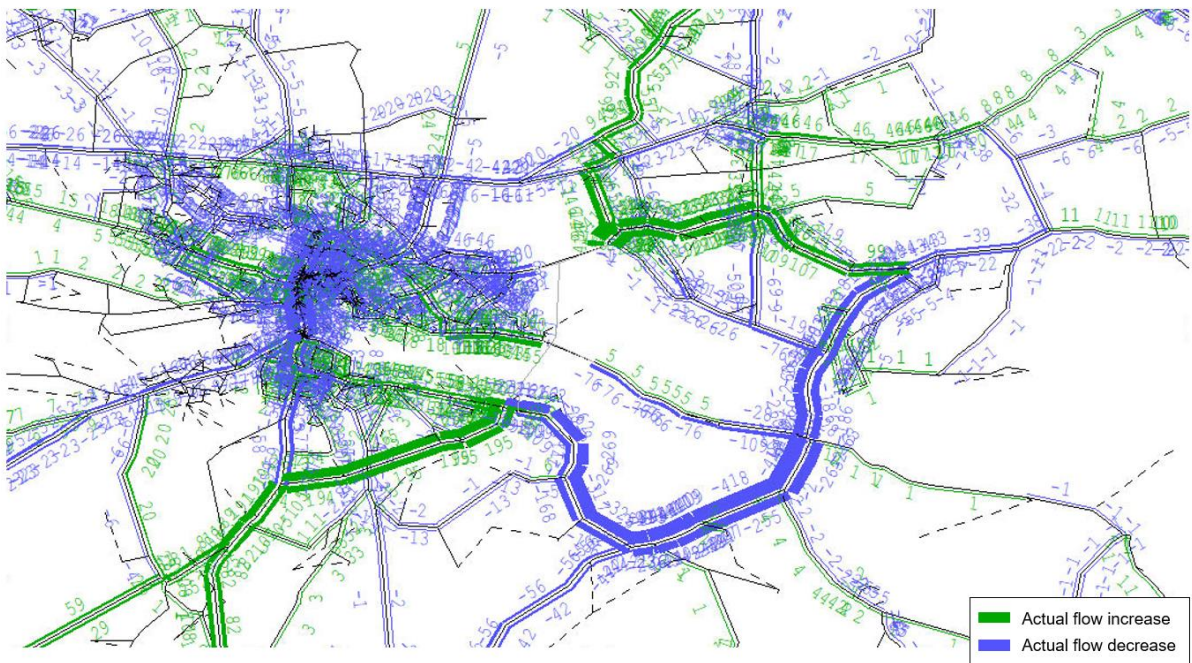


Figure 1-7 Flow Comparison of DSA vs. DN 2032 PM

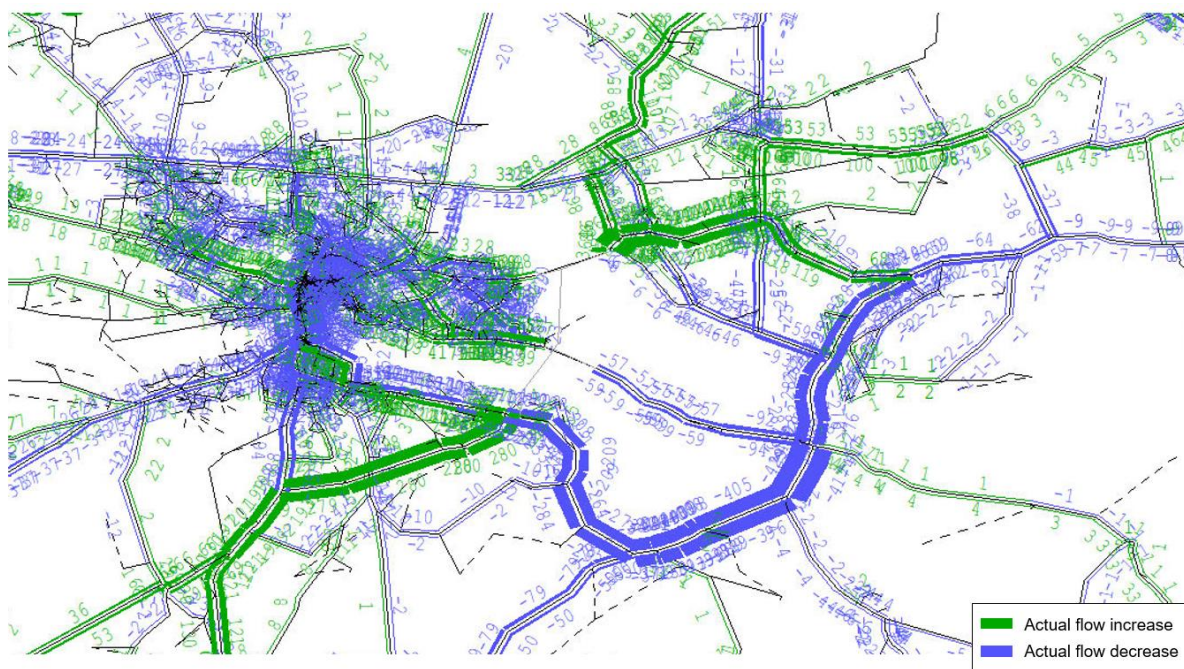


Figure 1-8 Flow Comparison of DSB vs. DN 2032 AM

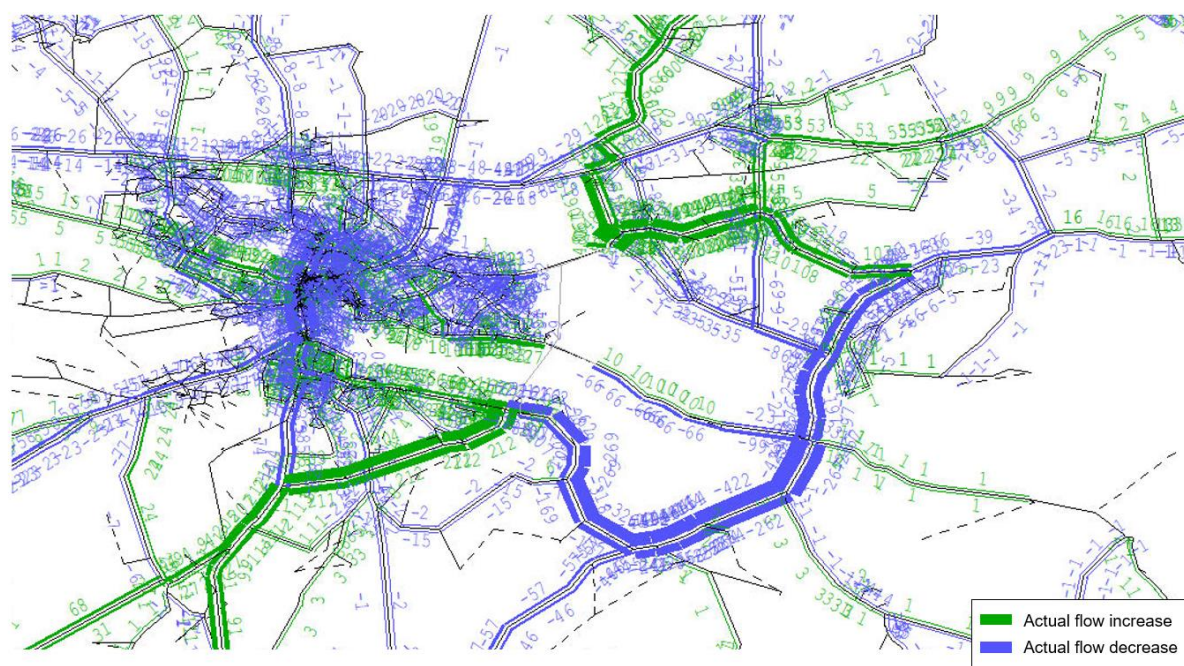


Figure 1-9 Flow Comparison of DSB vs. DN 2032 PM

2. Journey Times

Hereford Journey Times

2.1 The forecast impact of the proposed ERiC has been considered with respect to ten journey time routes in the HTM. The routes shown in Figure 2-1 have been assessed in the 2032 forecast year for AM and PM time periods in both directions. Route 10 uses the proposed ERiC, hence journey times for this route do not exist in the Do Nothing (DN) scenario.

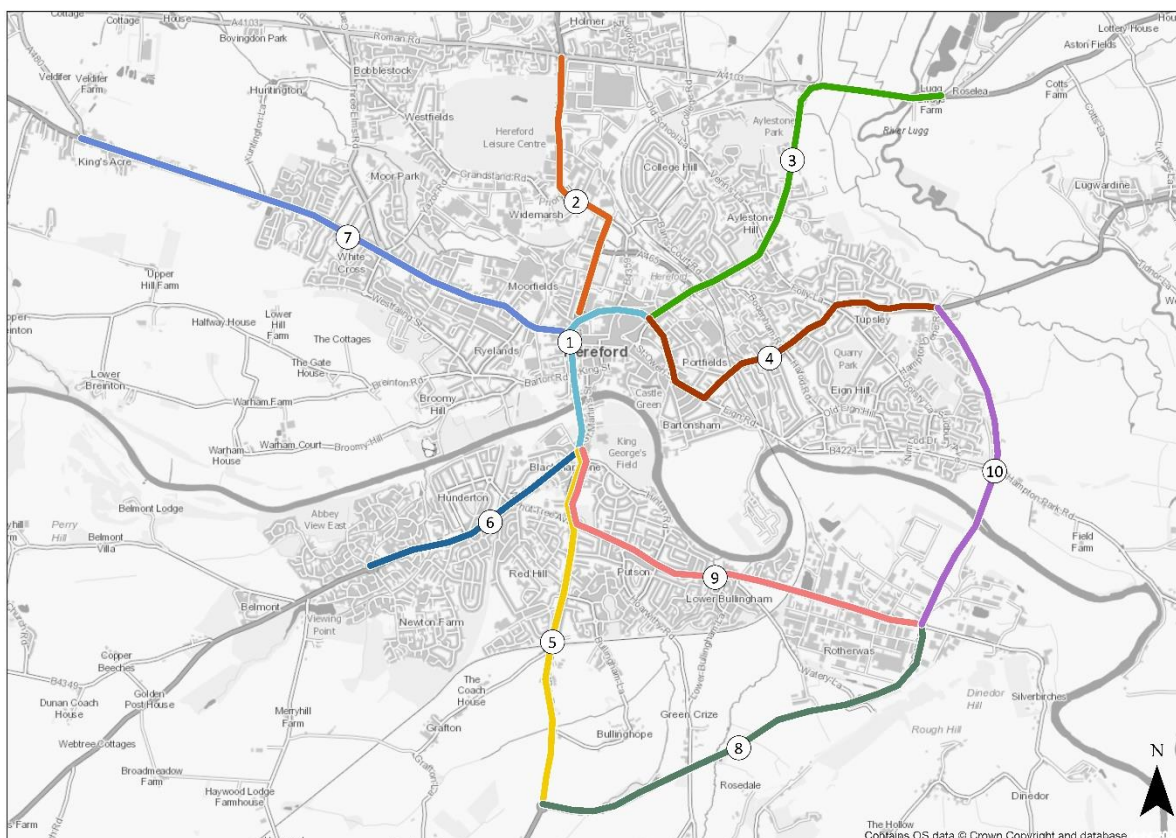


Figure 2-1 Map of Central Journey Time Routes Considered in the HTM

2.2 Table 2-1 presents the forecast journey times in the 2032 HTM DN, DSA and DSB for the AM peak hour, and in Table 2-2 for the PM peak hour.

2.3 The model forecasts that the introduction of the ERiC in DSA and DSB causes vehicles to reroute from key strategic routes in the centre of Hereford, such as the A49 and A438 Newmarket Street, to the new ERiC. This results in a reduction in journey times on most of the routes in the centre of Hereford, and the main routes into the city.

2.4 In the DN, the congestion in the centre of Hereford causes some vehicles to use alternative roads instead of the key strategic routes when accessing the north and south of the city. For example, road users travelling east-west route via Yazor Road and Grandstand Road to travel to/from the north of Hereford in the Do Nothing, and via Wordsworth Road and Breinton Road to travel to/from the south of Hereford, instead of using the A438 Whitecross Road. In the DSA and DSB scenarios, congestion in the centre of Hereford is reduced as a result of the ERiC, attracting east-west traffic to the key strategic routes such as the A438 Whitecross Road. This results in an increase in journey times for Route 7 when comparing DSA and DSB against the DN.

2.5 The journey times on Route 8 (B4399) are forecast to increase in both DSA and DSB when compared to the DN due to the rerouting associated with the ERiC. Vehicles

travelling north-south through Hereford which use the A49 in the DN, reroute to use the B4399 as a means of accessing the ERiC in the DS scenarios. This increases the number of vehicles on the B4399 in the DS scenarios, hence increases journey times on this route when compared to the DN. Route 9 also experiences an increase in journey times when comparing DSA and DSB with the DN in the PM peak hour, however this is not expected to be significant with the model forecasting increases of 2 seconds on the full route. This rerouting benefits Route 5 (A49) which is forecast to experience a reduction in journey times in DSA and DSB.

- 2.6 The two speed limits on the proposed ERiC (DSA and DSB) are forecast to have the same impact on the journey times in Hereford itself, with journey times being within 10 seconds of each other in the AM and PM peak hours on the first nine routes. Route 10 considers journey times on the ERiC itself. The 40mph speed limit considered in DSB is forecast to generate journey times 50 seconds faster than the 30mph option in DSA in both directions and in both time periods.

Table 2-1 Modelled Journey Times: HTM 2032 Forecast Year - AM Peak Hour

AM Peak Hour (08:00 – 09:00)		Do Nothing (DN)	30mph ERiC (DSA)		40mph ERiC (DSB)	
		Time (mm:ss)	Time (mm:ss)	Difference (DSA vs DN)	Time (mm:ss)	Difference (DSB vs DN)
1	Northbound	07:07	05:25	-01:41 (-24%)	05:18	-01:49 (-26%)
	Southbound	05:13	04:32	-00:41 (-13%)	04:28	-00:45 (-14%)
2	Inbound	05:53	05:37	-00:17 (-5%)	05:34	-00:20 (-6%)
	Outbound	05:06	05:04	-00:02 (-1%)	05:03	-00:03 (-1%)
3	Inbound	08:20	07:56	-00:25 (-5%)	07:53	-00:27 (-5%)
	Outbound	06:21	06:19	-00:02 (0%)	06:21	00:00 (0%)
4	Inbound	07:38	07:09	-00:29 (-6%)	07:05	-00:33 (-7%)
	Outbound	06:07	06:07	00:00 (0%)	06:07	00:00 (0%)
5	Inbound	07:51	06:34	-01:17 (-16%)	06:32	-01:19 (-17%)
	Outbound	04:54	04:47	-00:07 (-2%)	04:45	-00:09 (-3%)
6	Inbound	05:20	04:52	-00:28 (-9%)	04:51	-00:30 (-9%)
	Outbound	03:48	03:43	-00:05 (-2%)	03:43	-00:05 (-2%)
7	Inbound	07:15	07:31	00:15 (4%)	07:32	00:17 (4%)
	Outbound	06:28	06:31	00:03 (1%)	06:30	00:02 (0%)
8	Eastbound	02:40	02:56	00:16 (10%)	02:58	00:18 (11%)
	Westbound	02:29	02:36	00:07 (5%)	02:38	00:08 (6%)
9	Eastbound	06:20	06:12	-00:08 (-2%)	06:09	-00:11 (-3%)
	Westbound	06:07	05:52	-00:15 (-4%)	05:55	-00:12 (-3%)
10	Northbound	-	03:42	-	02:52	-
	Southbound	-	03:49	-	03:00	-

Table 2-2 Modelled Journey Times: HTM 2032 Forecast Year - PM Peak Hour

PM Peak Hour (17:00 – 18:00)		Do Nothing (DN)	30mph ERiC (DSA)		40mph ERiC (DSB)	
		Time (mm:ss)	Time (mm:ss)	Difference (DSA vs DN)	Time (mm:ss)	Difference (DSB vs DN)
1	Northbound	06:45	05:37	-01:07 (-17%)	05:32	-01:13 (-18%)
	Southbound	04:28	04:08	-00:20 (-7%)	04:06	-00:22 (-8%)
2	Inbound	05:02	04:52	-00:10 (-3%)	04:50	-00:12 (-4%)
	Outbound	06:11	05:49	-00:22 (-6%)	05:40	-00:31 (-8%)
3	Inbound	06:54	06:51	-00:04 (-1%)	06:48	-00:06 (-1%)
	Outbound	07:00	06:50	-00:10 (-2%)	06:48	-00:12 (-3%)
4	Inbound	06:45	06:28	-00:17 (-4%)	06:27	-00:18 (-5%)
	Outbound	06:10	06:04	-00:07 (-2%)	06:04	-00:06 (-2%)
5	Inbound	05:57	05:36	-00:20 (-6%)	05:33	-00:23 (-7%)
	Outbound	05:16	05:03	-00:13 (-4%)	05:02	-00:14 (-4%)
6	Inbound	04:22	04:09	-00:13 (-5%)	04:08	-00:14 (-5%)
	Outbound	04:39	04:32	-00:06 (-2%)	04:32	-00:07 (-3%)
7	Inbound	06:47	06:55	00:08 (2%)	06:55	00:08 (2%)
	Outbound	07:25	07:11	-00:14 (-3%)	07:08	-00:16 (-4%)
8	Eastbound	02:36	02:44	00:07 (5%)	02:45	00:09 (6%)
	Westbound	02:42	02:53	00:11 (7%)	02:54	00:12 (7%)
9	Eastbound	06:11	06:12	00:02 (0%)	06:13	00:02 (1%)
	Westbound	06:07	06:03	-00:04 (-1%)	06:04	-00:03 (-1%)
10	Northbound	-	03:42	-	02:52	-
	Southbound	-	03:47	-	02:57	-

Wider Journey Times

2.7 To assess the impact of the proposed ERiC on vehicle trips through the city, four additional routes have been considered as shown in Figure 2-2.

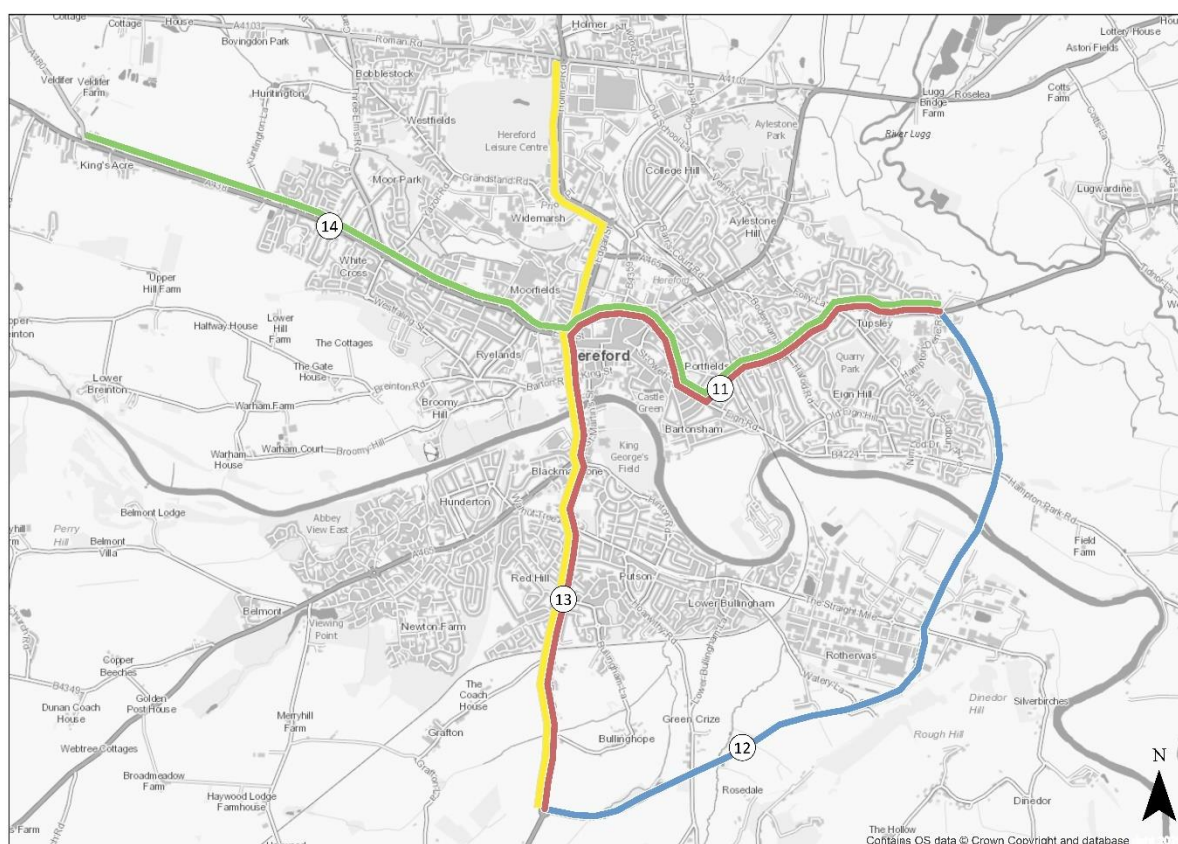


Figure 2-2 Map of Wider Journey Time Routes Considered in the HTM

- 2.8 The forecast journey times for the 2032 HTM DN, DSA and DSB on the wider routes are shown in Table 2-3 for the AM peak hour, and Table 2-4 for the PM peak hour.
- 2.9 The HTM forecasts that in 2032, the road user journey times for the through-city movements assessed in both AM and PM peaks reduce when comparing DSA and DSB with the DN.
- 2.10 The introduction of the ERiC generates the largest journey time saving for road user travelling between the south of the city and the north (Route 13) and the south of the city and the east via the City Centre (Route 11)
- 2.11 The HTM forecasts that the proposed ERiC, Route 12, provides a journey time saving between 9 minutes and 16 minutes in the AM and PM peak hours compared to the existing route through Herefordshire, Route 11, in the DN. The ERiC is forecast to have the largest journey time saving in DSB, 40mph ERiC, in the AM peak hour where journey time savings are forecast to be in excess of 15 minutes in the northbound direction and over 12 minutes in the southbound direction.
- 2.12 Movements between the south of the city and the east of the city, Route 12, using the new ERiC are forecast to take between 5 and 7 minutes in both the AM and PM time periods. As mentioned, when considering the within city routes, considering a 40mph speed limit on the ERiC in DSB results in a journey time 50 seconds faster than a 30mph limit in DSA.

Table 2-3 Modelled Wider Journey Times: HTM 2032 Forecast Year - AM Peak Hour

AM Peak Hour (08:00 – 09:00)		Do Nothing (DN)	30mph ERiC (DSA)		40mph ERiC (DSB)	
		Time (mm:ss)	Time (mm:ss)	Difference (DSA vs DN)	Time (mm:ss)	Difference (DSB vs DN)
11	North-eastbound	21:05	18:07	-02:58 (-14%)	17:57	-03:09 (-15%)
	South-westbound	17:45	16:28	-01:17 (-7%)	16:19	-01:27 (-8%)
12	North-eastbound	-	06:38	-	05:50	-
	South-westbound	-	06:25	-	05:38	-
13	Northbound	17:01	14:12	-02:48 (-16%)	14:03	-02:57 (-17%)
	Southbound	13:30	12:53	-00:37 (-5%)	12:46	-00:44 (-5%)
14	Eastbound	18:35	17:26	-01:09 (-6%)	17:20	-01:14 (-7%)
	Westbound	17:30	16:37	-00:53 (-5%)	16:30	-01:00 (-6%)

Table 2-4 Modelled Wider Journey Times: HTM 2032 Forecast Year - PM Peak Hour

PM Peak Hour (17:00 – 18:00)		Do Nothing (DN)	30mph ERiC (DSA)		40mph ERiC (DSB)	
		Time (mm:ss)	Time (mm:ss)	Difference (DSA vs DN)	Time (mm:ss)	Difference (DSB vs DN)
11	North-eastbound	18:52	17:17	-01:34 (-8%)	17:09	-01:43 (-9%)
	South-westbound	16:29	15:39	-00:50 (-5%)	15:35	-00:54 (-6%)
12	North-eastbound	-	06:25	-	05:37	-
	South-westbound	-	06:40	-	05:51	-
13	Northbound	15:17	13:53	-01:24 (-9%)	13:38	-01:39 (-11%)
	Southbound	12:38	12:03	-00:35 (-5%)	11:59	-00:39 (-5%)
14	Eastbound	17:32	16:38	-00:54 (-5%)	16:34	-00:58 (-5%)
	Westbound	17:00	16:20	-00:40 (-4%)	16:17	-00:44 (-4%)

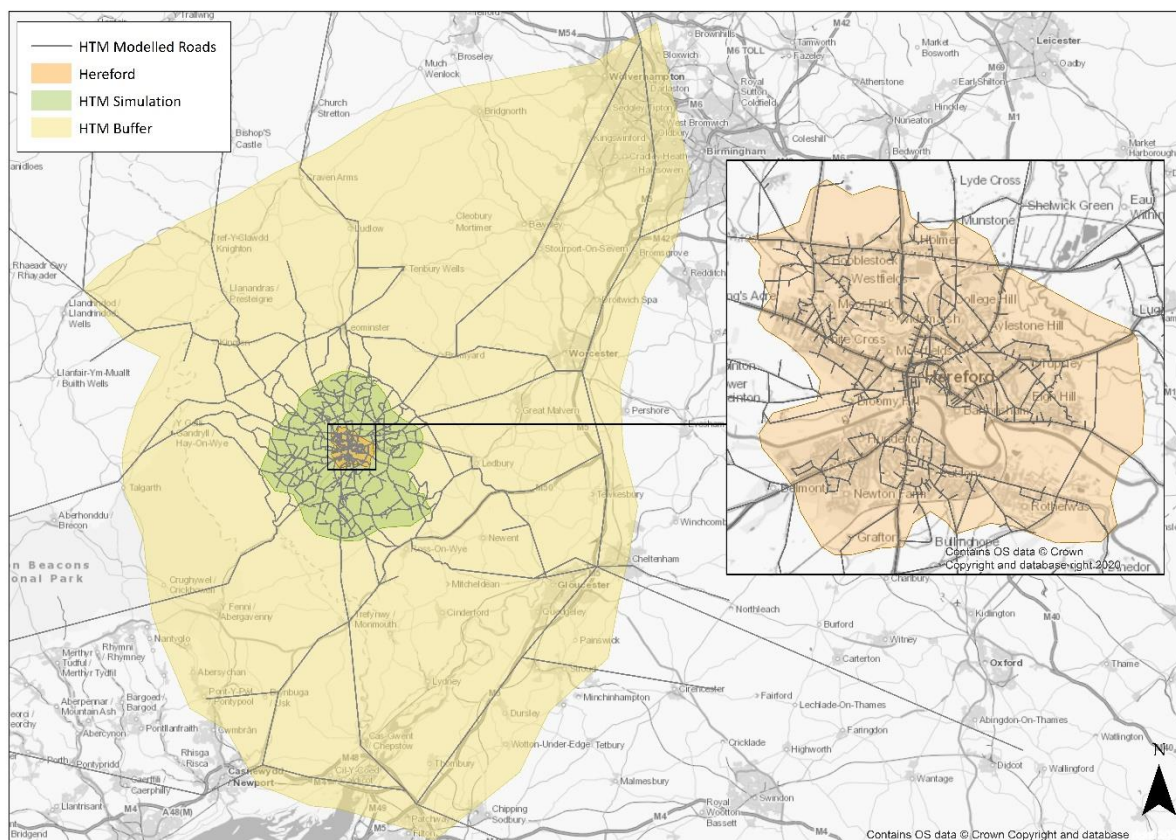
Vehicle Kilometres

2.13 The HTM forecasts the number of vehicle kilometres for road users (car, LGV, OGV1 and OGV2) in 2032 AM, IP and PM time periods for the DN and DS scenarios.

2.14 The forecast vehicle kilometres have been extracted from the HTM for three different areas, shown in Figure 2-3.

- Hereford
- HTM Simulation Area (including Hereford)
- HTM Fully Modelled Area (including the HTM Simulation Area and Hereford)

Figure 2-3 Map of Areas Considered for Vehicle Kilometres



- 2.15 The information presented in Table 2-5 and Table 2-6 show the vehicle kilometres in each of the three areas in the AM peak hour and PM peak hours respectively.
- 2.16 In both peak hours, the forecast vehicle kilometres in the Hereford area are forecast to increase by 2-3% in the DSA and DSB scenarios when compared to the DN. This is a result of road users being attracted into Hereford to use the proposed ERiC instead of using some of the other strategic routes outside of the city. For example, vehicles travelling between Kingsthorpe and Bartestree are forecast to use the B4399 in the DN scenario, but instead use the proposed ERiC to route through Hereford in the DSA and DSB hence increasing vehicle kilometres within the Hereford area.
- 2.17 When considering 30mph and 40mph speed limits on the ERiC in DSA and DSB respectively, the HTM forecasts that vehicle kilometres within Hereford, HTM Simulation and the HTM Fully Modelled Area are not significantly different.
- 2.18 The simulation area (including Hereford) is forecast to have a slight decrease in vehicle kilometres in DSA and DSB compared to the DN. Similarly, in both peak hours the vehicle kilometres in the HTM Fully Modelled Area (including the simulation area and Hereford) remain within 1% of the Do Nothing when the ERiC is introduced.
- 2.19 Overall there is predicted to be a slight reduction in vehicle kilometres across the study area as a result of the proposed scheme.

Table 2-5 Forecast Vehicle Kilometres in the 2032 AM Peak Hour

AM Peak Hour (08:00 - 09:00)	Do Nothing (DN)	30mph ERiC (DSA)		40mph ERiC (DSB)	
	Vehicle km's	Vehicle km's	Difference (DSA vs DN)	Vehicle km's	Difference (DSB vs DN)
Hereford	99,253	101,626	2,373 (2%)	101,941	2,688 (3%)
HTM Simulation (Including Hereford)	263,607	259,884	-3,723 (-1%)	260,446	-3,161 (-1%)
HTM Fully Modelled Area (Including Simulation)	754,234	754,046	-188 (0%)	754,279	45 (0%)

Table 2-6 Forecast Vehicle Kilometres in the 2032 PM Peak Hour

PM Peak Hour (17:00 - 18:00)	Do Nothing (DN)	30mph ERiC (DSA)		40mph ERiC (DSB)	
	Vehicle km's	Vehicle km's	Difference (DSA vs DN)	Vehicle km's	Difference (DSB vs DN)
Hereford	96,512	98,517	2,005 (2%)	98,637	2,125 (2%)
HTM Simulation (Including Hereford)	253,978	250,811	-3,167 (-1%)	250,942	-3,036 (-1%)
HTM Fully Modelled Area (Including Simulation)	674,215	672,461	-1,754 (0%)	669,880	-4,335 (-1%)

2.20 The forecast vehicle kilometres have been presented in stacked column chart which display the % of vehicle kilometres that are associated with each section of the model. Figure 2-4 presents this data for the AM and PM peak hours.

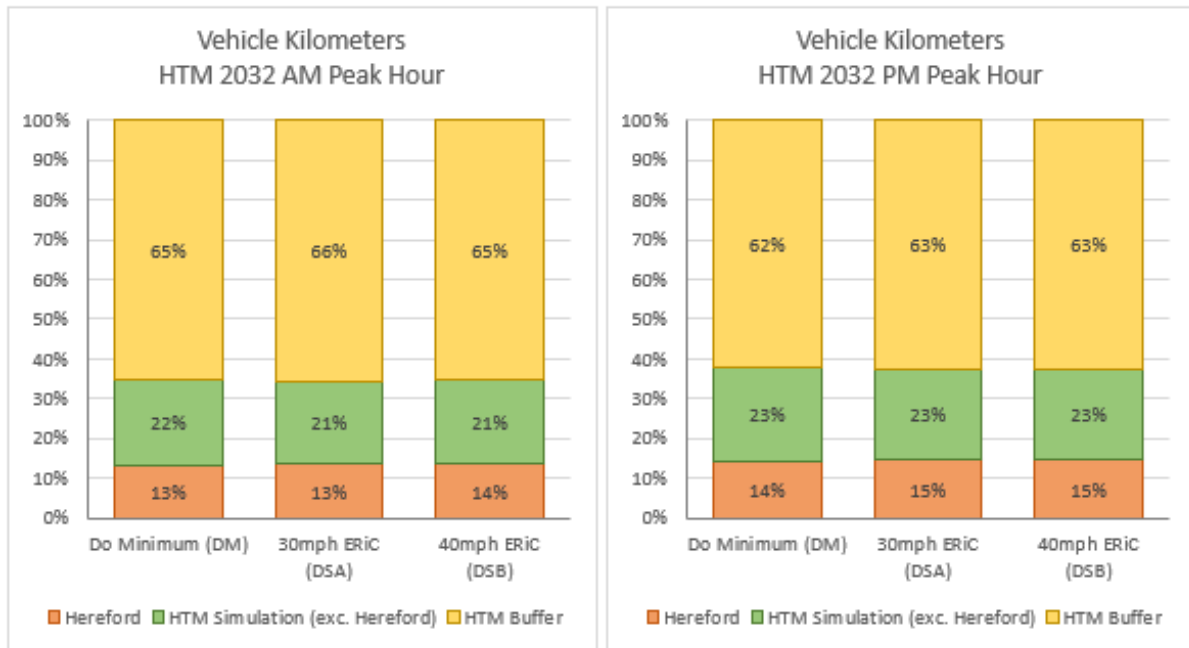


Figure 2-4 Forecast Vehicle Kilometres in the HTM 2032 Modelled Scenarios shown as a Percentage of the HTM Fully Modelled Area

3. Summary

Summary of Outputs

- 3.1 Traffic flows in the centre of Hereford are predicted to reduce as a result of the ERiC.
- 3.2 There are significant journey time savings in Hereford as result of ERiC.
- 3.3 It is predicted that there will be a slight reduction in vehicle kilometres across the study area as a result of ERiC.
- 3.4 These changes in traffic flow, journey times and vehicle kilometres are likely to result in moderate economic benefits for the proposed scheme.
- 3.5 It is considered that due to the likely cost of the scheme, the Value for Money (VfM) category is likely to be 'medium' or 'low'.

