



Wokingham Borough Council

WOKINGHAM STRATEGIC TRANSPORT MODEL 4 (WSTM4)

Local Model Validation Report Addendum





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1. INTRODUCTION

1.1. BACKGROUND

- 1.1.1. In 2008 WSP was appointed as the Highways and Transport Term consultant for Wokingham Borough Council (WBC), responsible for the use and on-going maintenance of the Wokingham Strategic Transport Model (WSTM). Since this appointment WSP has completed three model updates: WSTM2, WSTM3 and WSTM4, the last of which is the subject of this addendum.
- 1.1.2. In Autumn 2015, WSP was commissioned to update the WSTM3 base year from 2010 to 2015, to support strategic and local planning for the next plan period. As part of this update, the model software platform was migrated from SATURN to PTV's VISUM 15.
- 1.1.3. The development of the WSTM4 base year model was completed in 2016, and was reported in the associated Local Model Validation Report¹, in March 2017. However, following the development of the validated base year, future year scenario testing highlighted issues regarding the stability of PTV's recommended highway assignment procedure known as 'Equilibrium_Lohse'.
- 1.1.4. The assignment algorithm sometimes produced results which did not meet the Department for Transport's (DfT) Transport Appraisal Guidance (TAG) convergence criteria, particularly in heavily congested networks. Since then PTV has implemented several software updates, which has culminated in a new private transport assignment procedure known as 'Equilibrium assignment Bi-conjugate Frank-Wolfe', in VISUM 17.
- 1.1.5. Following the release of VISUM 17, the revised assignment procedure was shown to address the model convergence issues experienced in WSTM4, producing more stable and sensible results. As a result, WBC requested that the highway portion of the WSTM4 Highway Assignment Model (HAM) be updated from VISUM 15 to VISUM 17, and in early 2018 a revalidation exercise was undertaken to carry out this work. The results of this revalidation exercise are presented in an updated LMVR² issued in May 2018 addressing the highway assignment.
- 1.1.6. WBC have now requested that the public transport (PT) and variable demand elements of WSTM4 be updated to take account of the changes to the highway validation. This report sets out the results of this update, and should be considered in addition to the other LMVR documents associated with WSTM4.

1.2. PURPOSE OF ADDENDUM

- 1.2.1. This report sets out the changes made to the PT element of the WSTM4 and changes to the variable demand model (VDM), compared with that reported in the original LMVR¹. It should be noted that anything not mentioned in this addendum should be assumed unchanged. In addition, the

¹ WSP. 2017. Wokingham Strategic Transport Model 4 (WSTM4) Local Model Validation Report.

² WSP. 2018. Wokingham Strategic Transport Model 4 (WSTM4) Local Model Validation Report.

revised validation results for the PT element and updated results from the realism testing replace those originally reported.

1.3. REPORT STRUCTURE

1.3.1. This report is split into the following chapters:

- Chapter 1 - sets out the background to the study and purpose of the addendum
- Chapter 2 - sets out the results of the updated PT assignment
- Chapter 3 - describes the results of the updated realism testing

2. PUBLIC TRANSPORT MODEL VALIDATION

2.1. OVERVIEW

- 2.1.1. This section sets out the revised validation results for the PT element of the HAM after the update to VISUM 17. It should be noted that no changes have been made to the PT assignment procedure since migrating the model to the new software version.
- 2.1.2. The following sub-sections outline the updates made to the PT element of the HAM, and the resultant changes to validation after assignment in VISUM 17.

2.2. CORRECTIONS TO TICKET TYPES

- 2.2.1. A bug was discovered in VISUM 15 which results in the loss of the association of ticket type to trip purpose when saving and reopening a model file. As a result, the PT element of the WSTM4 had been assigned without the correct fares for all trip purposes.
- 2.2.2. This bug was later patched by PTV in subsequent releases of the software, and this has now been corrected for the update to VISUM 17. As a result, the changes in the network, service and assignment validation, reported below, are the direct result of this change to the fare system, in addition to any changes brought about by the update to VISUM 17.

2.3. NETWORK AND SERVICE VALIDATION

- 2.3.1. The results of the updated network and service validation analysis are presented in Appendix A.1. This includes a comparison of observed and modelled journey time data for a number of routes, in each direction, for each modelled time-period.
- 2.3.2. The results have been generated from the same origin-destination pairs, and the same observed travel time data previously extracted from Traveline, as reported in the original LMVR.
- 2.3.3. The following routes have been examined:
 - Route 1: Wokingham town centre - Reading town centre
 - Route 2: Reading town centre – Bracknell town centre
 - Route 3: Wokingham, London Rd– Bracknell, Skimped Hill Lane
 - Route 4: Wokingham, Broad St – Winnersh Cross Roads, Sainsbury's Store
 - Route 5: Woodley, Bulmershe Sports Centre – Lower Earley, ASDA store
 - Route 6: Reading town centre – Oxford Town Centre.
 - Route 7: Reading town centre – Central London
 - Route 8: Shinfield – Reading town centre
 - Route 9: Reading town centre – area north of Caversham.
- 2.3.4. It can be concluded from the results presented in Appendix A.1 that the public transport model is able to sufficiently match the journey itineraries and times provided by the Traveline dataset to travellers. In addition, the overall modelled journey times have not significantly changed from the previous assignment results in VISUM 15.

2.4. ASSIGNMENT VALIDATION

2.4.1. The updated comparison of observed and modelled stop point passenger flows is presented below in Table 1 to Table 3 for all stops, bus stops and train stops, respectively. Table 4 presents the updated passenger link flow validation results for rail.

Table 1 - Public transport stop point validation results - bus and rail combined

Criteria	AM peak		Inter-peak		PM peak	
	Total passengers boarding	Total passengers alighting	Total passengers boarding	Total passengers alighting	Total passengers boarding	Total passengers alighting
GEH < 7.5	90%	87%	94%	88%	90%	88%
GEH < 5.0	83%	78%	84%	84%	81%	81%

Table 2 - Public transport bus stop validation results

Criteria	AM peak		Inter-peak		PM peak	
	Total passengers boarding	Total passengers alighting	Total passengers boarding	Total passengers alighting	Total passengers boarding	Total passengers alighting
GEH < 7.5	85%	76%	91%	85%	82%	79%
GEH < 5.0	74%	62%	74%	76%	68%	71%

Table 3 - Public transport train stop validation results

Criteria	AM peak		Inter-peak		PM peak	
	Total passengers boarding	Total passengers alighting	Total passengers boarding	Total passengers alighting	Total passengers boarding	Total passengers alighting
GEH < 7.5	94%	97%	97%	91%	97%	97%
GEH < 5.0	91%	94%	94%	91%	94%	91%

Table 4 - Public transport rail link flow validation results

Criteria	AM peak	Inter peak	PM peak
	Total passengers	Total passengers	Total passengers
GEH pass	88%	100%	88%
Flow pass	100%	100%	100%

- 2.4.2. Following the checks on the routing of passengers in the model and comparison of patronage at railway stations, it can be concluded that the model can reasonably replicate the general scale of patronage across all time periods, locations and modes.

3. VARIABLE DEMAND MODEL UPDATE

3.1. OVERVIEW

- 3.1.1. The revalidation exercise carried out on the HAM has resulted in changes to the Base Year (BY) demand matrices and out-turn cost skims, previously input into the WSTM4 VDM. Therefore, it has been necessary to re-run the realism testing using updated matrices and cost skims extracted from the updated HAMs.
- 3.1.2. The existing WSTM4 VDM has been retained within VISUM 15, as VISUM 17 does not currently provide the ability to doubly constrain home-based work trips in incremental demand models, a requirement for TAG compliance. This feature is included in VISUM 15 and PTV currently has no plans to implement this change in VISUM 17 in the immediate future.
- 3.1.3. As a result, the realism testing for the base year has been carried out in VISUM 17.04 for the HAMs, and the VDM has been run in VISUM 15.15, as previously. No changes have been made to the procedure sequence or scaling parameters used in the VDM.

3.2. CAR FUEL COST ELASTICITY

- 3.2.1. Table 5 presents the updated car fuel cost elasticity results at the matrix level for each time-period and trip purpose, excluding fixed movements (external to external, external to internal), as per TAG guidance.

Table 5 – Matrix based car fuel cost elasticity

Trip purpose	AM	IP	PM	Annualised
Commuting	-0.225	-0.212	-0.228	
Employer's business	-0.075	-0.083	-0.068	
Other	-0.548	-0.513	-0.512	
Overall	-0.267	-0.366	-0.333	-0.331

- 3.2.2. The matrix based realism test show that for all purposes an acceptable level of elasticity is met. The overall annual elasticity lies within the range -0.25 to - 0.35, meeting TAG acceptability criteria.
- 3.2.3. These elasticity values have been obtained from a converged run of the demand/supply loop, with a gap value of 0.008, meeting TAG guidelines.
- 3.2.4. Table 6 presents the updated car fuel cost elasticity results at the network level for each time-period and trip purpose within the Detailed Model Area. The results presented also exclude fixed movements.

Table 6 – Network based car fuel cost elasticity

Trip purpose	AM	IP	PM	Annualised
Commuting	-0.240	-0.231	-0.248	
Employer's business	-0.003	-0.039	-0.012	
Other	-0.353	-0.377	-0.358	
Overall	-0.238	-0.288	-0.273	-0.271

- 3.2.5. The network based realism test show that for all purposes an acceptable level of elasticity is met. The overall annual elasticity lies within the range -0.25 to - 0.35, meeting TAG acceptability criteria.

3.3. CAR JOURNEY TIME ELASTICITY

- 3.3.1. Table 7 presents the updated car journey time elasticity results for each time-period and trip purpose, excluding fixed movements.

Table 7 – Matrix based journey time elasticity

Trip purpose	AM	IP	PM	Annualised
Commuting	-0.212	-0.132	-0.130	
Employer's business	-0.430	-0.320	-0.384	
Other	-0.451	-0.441	-0.398	
Overall	-0.272	-0.325	-0.263	-0.292

- 3.3.2. TAG guidance states that the overall annual car journey time elasticity should be no stronger than - 2.0. The results show that this criterion has been met across all time-periods and trip purposes.

3.4. PUBLIC TRANSPORT FARE ELASTICITY

- 3.4.1. Table 8 presents the updated public transport fare elasticity results for each time-period and trip purpose, excluding fixed movements.
- 3.4.2. TAG guidance requires that the annualised elasticity values must lie in the range of -0.2 to -0.9 across all journey purposes.

Table 8 - Matrix based public transport fare elasticity

Trip purpose	AM	IP	PM	Annualised
Commuting	-0.275	-0.187	-0.160	
Employer's business	-0.581	-0.509	-0.413	
Other	-0.687	-0.642	-0.504	
Overall	-0.336	-0.482	-0.314	-0.374

- 3.4.3. The results show that the annualised public transport fare elasticity falls within the accepted range and therefore meets TAG guidance.
- 3.4.4. These elasticity values have been obtained from a converged run of the demand/supply loop, with a gap value of 0.005, meeting TAG guidelines.

Appendix A

wsp
PUBLIC TRANSPORT CALIBRATION
AND VALIDATION

Appendix A.1

PUBLIC TRANSPORT JOURNEY TIMES

Route 1: Reading to Wokingham

Mode	Parameter	AM			IP			PM		
		Obs	Mod	Abs. Diff	Obs	Mod	Abs. Diff	Obs	Mod	Abs. Diff
Rail	Average Journey Time	00:24:00	00:27:34	00:03:34	00:26:00	00:27:34	00:01:34	00:24:00	00:30:14	00:06:14
	Average Access Time	00:07:00	00:10:25	00:03:25	00:07:00	00:10:25	00:03:25	00:07:00	00:10:25	00:03:25
	Average Egress Time	00:09:00	00:10:09	00:01:09	00:09:00	00:10:09	00:01:09	00:09:00	00:10:09	00:01:09
	In-vehicle Time	00:08:00	00:07:00	00:01:00	00:08:00	00:07:00	00:01:00	00:08:00	00:09:40	00:01:40
	Transfer waiting Time	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00
	Walk Time	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00
	Number of Interchanges		0			0			0	
Rail & Bus	Average Journey Time									
	Average Access Time									
	Average Egress Time									
	In-vehicle Time									
	Transfer waiting Time									
	Walk Time									
	Number of Interchanges									
Bus & Rail	Average Journey Time									
	Average Access Time									
	Average Egress Time									
	In-vehicle Time									
	Transfer waiting Time									
	Walk Time									
	Number of Interchanges									
Bus	Average Journey Time									
	Average Access Time									
	Average Egress Time									
	In-vehicle Time									

Mode	Parameter	AM			IP			PM		
		Obs	Mod	Abs. Diff	Obs	Mod	Abs. Diff	Obs	Mod	Abs. Diff
	Transfer waiting Time									
	Walk Time									
	Number of Interchanges									

Route 1: Wokingham to Reading

Mode	Parameter	AM			IP			PM		
		Obs	Mod	Abs. Diff	Obs	Mod	Abs. Diff	Obs	Mod	Abs. Diff
Rail	Average Journey Time	00:26:00	00:30:54	00:04:54	00:34:00	00:27:34	00:06:26	00:27:00	00:28:34	00:01:34
	Average Access Time	00:09:00	00:10:09	00:01:09	00:09:00	00:10:09	00:01:09	00:09:00	00:10:09	00:01:09
	Average Egress Time	00:07:00	00:10:25	00:03:25	00:07:00	00:10:25	00:03:25	00:07:00	00:10:25	00:03:25
	In-vehicle Time	00:10:00	00:10:20	00:00:20	00:10:00	00:07:00	00:03:00	00:11:00	00:08:00	00:03:00
	Transfer waiting Time	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00
	Walk Time	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00
	Number of Interchanges		0			0			0	
Rail & Bus	Average Journey Time									
	Average Access Time									
	Average Egress Time									
	In-vehicle Time									
	Transfer waiting Time									
	Walk Time									
	Number of Interchanges									
Bus & Rail	Average Journey Time									
	Average Access Time									
	Average Egress Time									
	In-vehicle Time									
	Transfer waiting Time									

Mode	Parameter	AM			IP			PM		
		Obs	Mod	Abs. Diff	Obs	Mod	Abs. Diff	Obs	Mod	Abs. Diff
	Walk Time									
	Number of Interchanges									
Bus	Average Journey Time	00:42:00	00:44:02	00:02:02	00:41:00	00:43:01	00:02:01	00:44:00	00:42:14	00:01:46
	Average Access Time	00:01:00	00:01:56	00:00:56	00:01:00	00:01:56	00:00:56	00:01:00	00:01:56	00:00:56
	Average Egress Time	00:06:00	00:06:00	00:00:00	00:06:00	00:04:19	00:01:41	00:06:00	00:03:53	00:02:07
	In-vehicle Time	00:35:00	00:36:06	00:01:06	00:34:00	00:36:02	00:02:02	00:37:00	00:36:00	00:01:01
	Transfer waiting Time	00:00:00	00:00:00	00:00:00	00:00:00	00:00:28	00:00:28	00:00:00	00:00:15	00:00:15
	Walk Time	00:00:00	00:00:00	00:00:00	00:00:00	00:00:17	00:00:17	00:00:00	00:00:10	00:00:10
	Number of Interchanges		0			1			1	

Route 2: Reading to Bracknell

Mode	Parameter	AM			IP			PM		
		Obs	Mod	Abs. Diff	Obs	Mod	Abs. Diff	Obs	Mod	Abs. Diff
Rail	Average Journey Time	00:31:00	00:31:02	00:00:02	00:31:00	00:27:02	00:03:58	00:31:00	00:31:02	00:00:02
	Average Access Time	00:06:00	00:06:40	00:00:40	00:06:00	00:06:40	00:00:40	00:06:00	00:06:40	00:00:40
	Average Egress Time	00:05:00	00:03:22	00:01:38	00:05:00	00:03:22	00:01:38	00:05:00	00:03:22	00:01:38
	In-vehicle Time	00:20:00	00:21:00	00:01:00	00:20:00	00:16:00	00:04:00	00:20:00	00:21:00	00:01:00
	Transfer waiting Time	00:00:00	00:00:00	00:00:00	00:00:00	00:01:00	00:01:00	00:00:00	00:00:00	00:00:00
	Walk Time	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00
	Number of Interchanges		0			1			0	
Rail & Bus	Average Journey Time									
	Average Access Time									
	Average Egress Time									
	In-vehicle Time									
	Transfer waiting Time									
	Walk Time									

Mode	Parameter	AM			IP			PM		
		Obs	Mod	Abs. Diff	Obs	Mod	Abs. Diff	Obs	Mod	Abs. Diff
	Number of Interchanges									
Bus & Rail	Average Journey Time									
	Average Access Time									
	Average Egress Time									
	In-vehicle Time									
	Transfer waiting Time									
	Walk Time									
	Number of Interchanges									
Bus	Average Journey Time									
	Average Access Time									
	Average Egress Time									
	In-vehicle Time									
	Transfer waiting Time									
	Walk Time									
	Number of Interchanges									

Route 2: Bracknell to Reading

Mode	Parameter	AM			IP			PM		
		Obs	Mod	Abs. Diff	Obs	Mod	Abs. Diff	Obs	Mod	Abs. Diff
Rail	Average Journey Time	00:31:00	00:31:02	00:00:02	00:31:00	00:28:02	00:02:58	00:31:00	00:27:02	00:03:58
	Average Access Time	00:05:00	00:03:22	00:01:38	00:05:00	00:03:22	00:01:38	00:05:00	00:03:22	00:01:38
	Average Egress Time	00:06:00	00:06:40	00:00:40	00:06:00	00:06:40	00:00:40	00:06:00	00:06:40	00:00:40
	In-vehicle Time	00:20:00	00:21:00	00:01:00	00:20:00	00:17:00	00:03:00	00:20:00	00:16:00	00:04:00
	Transfer waiting Time	00:00:00	00:00:00	00:00:00	00:00:00	00:01:00	00:01:00	00:00:00	00:01:00	00:01:00
	Walk Time	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00
	Number of Interchanges		0			1			1	

Mode	Parameter	AM			IP			PM		
		Obs	Mod	Abs. Diff	Obs	Mod	Abs. Diff	Obs	Mod	Abs. Diff
Rail & Bus	Average Journey Time									
	Average Access Time									
	Average Egress Time									
	In-vehicle Time									
	Transfer waiting Time									
	Walk Time									
	Number of Interchanges									
Bus & Rail	Average Journey Time									
	Average Access Time									
	Average Egress Time									
	In-vehicle Time									
	Transfer waiting Time									
	Walk Time									
	Number of Interchanges									
Bus	Average Journey Time									
	Average Access Time									
	Average Egress Time									
	In-vehicle Time									
	Transfer waiting Time									
	Walk Time									
	Number of Interchanges									

Route 3: Wokingham to Bracknell

Mode	Parameter	AM			IP			PM		
		Obs	Mod	Abs. Diff	Obs	Mod	Abs. Diff	Obs	Mod	Abs. Diff
Rail	Average Journey Time	00:31:00	00:28:29	00:02:31	00:31:00	00:28:29	00:02:31	00:31:00	00:28:29	00:02:31

Mode	Parameter	AM			IP			PM		
		Obs	Mod	Abs. Diff	Obs	Mod	Abs. Diff	Obs	Mod	Abs. Diff
	Average Access Time	00:10:00	00:10:09	00:00:09	00:10:00	00:10:09	00:00:09	00:10:00	00:10:09	00:00:09
	Average Egress Time	00:15:00	00:14:20	00:00:40	00:15:00	00:14:20	00:00:40	00:15:00	00:14:20	00:00:40
	In-vehicle Time	00:06:00	00:04:00	00:02:00	00:06:00	00:04:00	00:02:00	00:06:00	00:04:00	00:02:00
	Transfer waiting Time	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00
	Walk Time	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00
	Number of Interchanges		0			0			0	
Rail & Bus	Average Journey Time									
	Average Access Time									
	Average Egress Time									
	In-vehicle Time									
	Transfer waiting Time									
	Walk Time									
	Number of Interchanges									
Bus & Rail	Average Journey Time									
	Average Access Time									
	Average Egress Time									
	In-vehicle Time									
	Transfer waiting Time									
	Walk Time									
	Number of Interchanges									
Bus	Average Journey Time	00:32:00	00:29:34	00:02:26	00:30:00	00:29:34	00:00:26	00:35:00	00:29:34	00:05:26
	Average Access Time	00:02:00	00:01:56	00:00:04	00:02:00	00:01:56	00:00:04	00:02:00	00:01:56	00:00:04
	Average Egress Time	00:14:00	00:10:12	00:03:48	00:14:00	00:10:12	00:03:48	00:14:00	00:10:12	00:03:48
	In-vehicle Time	00:16:00	00:17:26	00:01:26	00:14:00	00:17:26	00:03:26	00:19:00	00:17:26	00:01:34
	Transfer waiting Time	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00
	Walk Time	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00

Mode	Parameter	AM			IP			PM		
		Obs	Mod	Abs. Diff	Obs	Mod	Abs. Diff	Obs	Mod	Abs. Diff
	Number of Interchanges		0			0			0	

Route 3: Bracknell to Wokingham

Mode	Parameter	AM			IP			PM		
		Obs	Mod	Abs. Diff	Obs	Mod	Abs. Diff	Obs	Mod	Abs. Diff
Rail	Average Journey Time	00:31:00	00:28:29	00:02:31	00:31:00	00:28:29	00:02:31	00:31:00	00:28:29	00:02:31
	Average Access Time	00:15:00	00:14:20	00:00:40	00:15:00	00:14:20	00:00:40	00:15:00	00:14:20	00:00:40
	Average Egress Time	00:10:00	00:10:09	00:00:09	00:10:00	00:10:09	00:00:09	00:10:00	00:10:09	00:00:09
	In-vehicle Time	00:06:00	00:04:00	00:02:00	00:06:00	00:04:00	00:02:00	00:06:00	00:04:00	00:02:00
	Transfer waiting Time	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00
	Walk Time	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00
	Number of Interchanges		0			0			0	
Rail & Bus	Average Journey Time									
	Average Access Time									
	Average Egress Time									
	In-vehicle Time									
	Transfer waiting Time									
	Walk Time									
	Number of Interchanges									
Bus & Rail	Average Journey Time									
	Average Access Time									
	Average Egress Time									
	In-vehicle Time									
	Transfer waiting Time									
	Walk Time									
	Number of Interchanges									

Mode	Parameter	AM			IP			PM		
		Obs	Mod	Abs. Diff	Obs	Mod	Abs. Diff	Obs	Mod	Abs. Diff
Bus	Average Journey Time	00:38:00	00:30:14	00:07:46	00:34:00	00:30:14	00:03:46	00:34:00	00:30:14	00:03:46
	Average Access Time	00:14:00	00:09:11	00:04:49	00:14:00	00:09:11	00:04:49	00:14:00	00:09:11	00:04:49
	Average Egress Time	00:02:00	00:01:56	00:00:04	00:02:00	00:01:56	00:00:04	00:02:00	00:01:56	00:00:04
	In-vehicle Time	00:22:00	00:19:07	00:02:53	00:18:00	00:19:07	00:01:07	00:18:00	00:19:07	00:01:07
	Transfer waiting Time	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00
	Walk Time	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00
	Number of Interchanges		0			0			0	

Route 4: Wokingham to Winnersh

Mode	Parameter	AM			IP			PM		
		Obs	Mod	Abs. Diff	Obs	Mod	Abs. Diff	Obs	Mod	Abs. Diff
Rail	Average Journey Time	00:21:00	00:20:26	00:00:34				00:21:00	00:20:26	00:00:34
	Average Access Time	00:10:00	00:10:09	00:00:09				00:10:00	00:10:09	00:00:09
	Average Egress Time	00:08:00	00:07:17	00:00:43				00:08:00	00:07:17	00:00:43
	In-vehicle Time	00:03:00	00:03:00	00:00:00				00:03:00	00:03:00	00:00:00
	Transfer waiting Time	00:00:00	00:00:00	00:00:00				00:00:00	00:00:00	00:00:00
	Walk Time	00:00:00	00:00:00	00:00:00				00:00:00	00:00:00	00:00:00
	Number of Interchanges		0						0	
Rail & Bus	Average Journey Time									
	Average Access Time									
	Average Egress Time									
	In-vehicle Time									
	Transfer waiting Time									
	Walk Time									
	Number of Interchanges									
Bus & Rail	Average Journey Time									

Mode	Parameter	AM			IP			PM		
		Obs	Mod	Abs. Diff	Obs	Mod	Abs. Diff	Obs	Mod	Abs. Diff
	Average Access Time									
	Average Egress Time									
	In-vehicle Time									
	Transfer waiting Time									
	Walk Time									
	Number of Interchanges									
Bus	Average Journey Time	00:21:00	00:13:26	00:07:34	00:16:00	00:12:48	00:03:12	00:19:00	00:13:26	00:05:34
	Average Access Time	00:03:00	00:01:56	00:01:04	00:03:00	00:01:56	00:01:04	00:03:00	00:01:56	00:01:04
	Average Egress Time	00:02:00	00:00:53	00:01:07	00:02:00	00:00:53	00:01:07	00:02:00	00:00:53	00:01:07
	In-vehicle Time	00:16:00	00:10:37	00:05:23	00:11:00	00:09:59	00:01:01	00:14:00	00:10:37	00:03:23
	Transfer waiting Time	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00
	Walk Time	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00
	Number of Interchanges		0			0			0	

Route 4: Winnersh to Wokingham

Mode	Parameter	AM			IP			PM		
		Obs	Mod	Abs. Diff	Obs	Mod	Abs. Diff	Obs	Mod	Abs. Diff
Rail	Average Journey Time	00:21:00	00:20:26	00:00:34	00:21:00	00:20:26	00:00:34	00:21:00	00:20:26	00:00:34
	Average Access Time	00:08:00	00:07:17	00:00:43	00:08:00	00:07:17	00:00:43	00:08:00	00:07:17	00:00:43
	Average Egress Time	00:10:00	00:10:09	00:00:09	00:10:00	00:10:09	00:00:09	00:10:00	00:10:09	00:00:09
	In-vehicle Time	00:03:00	00:03:00	00:00:00	00:03:00	00:03:00	00:00:00	00:03:00	00:03:00	00:00:00
	Transfer waiting Time	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00
	Walk Time	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:18:00	00:00:00	00:00:00
	Number of Interchanges		0			0			0	
Rail & Bus	Average Journey Time									
	Average Access Time									

	Average Egress Time									
	In-vehicle Time									
	Transfer waiting Time									
	Walk Time									
	Number of Interchanges									
Bus & Rail	Average Journey Time									
	Average Access Time									
	Average Egress Time									
	In-vehicle Time									
	Transfer waiting Time									
	Walk Time									
	Number of Interchanges									
Bus	Average Journey Time	00:23:00	00:15:43	00:07:17	00:19:00	00:15:43	00:03:17	00:20:00	00:15:43	00:04:17
	Average Access Time	00:02:00	00:03:55	00:01:55	00:02:00	00:03:55	00:01:55	00:03:00	00:03:55	00:00:55
	Average Egress Time	00:03:00	00:01:56	00:01:04	00:03:00	00:01:56	00:01:04	00:02:00	00:01:56	00:00:04
	In-vehicle Time	00:18:00	00:09:52	00:08:08	00:14:00	00:09:52	00:04:08	00:15:00	00:09:52	00:05:08
	Transfer waiting Time	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00
	Walk Time	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00
	Number of Interchanges		0			0			0	

Route 5: Woodley to Lower Earley

Mode	Parameter	AM			IP			PM		
		Obs	Mod	Abs. Diff	Obs	Mod	Abs. Diff	Obs	Mod	Abs. Diff
Rail	Average Journey Time									
	Average Access Time									
	Average Egress Time									
	In-vehicle Time									
	Transfer waiting Time									
	Walk Time									

Mode	Parameter	AM			IP			PM		
		Obs	Mod	Abs. Diff	Obs	Mod	Abs. Diff	Obs	Mod	Abs. Diff
	Number of Interchanges									
Rail & Bus	Average Journey Time									
	Average Access Time									
	Average Egress Time									
	In-vehicle Time									
	Transfer waiting Time									
	Walk Time									
	Number of Interchanges									
Bus & Rail	Average Journey Time									
	Average Access Time									
	Average Egress Time									
	In-vehicle Time									
	Transfer waiting Time									
	Walk Time									
	Number of Interchanges									
Bus	Average Journey Time	00:40:00	00:36:36	00:03:24	00:38:00	00:42:22	00:04:22	00:37:00	00:39:22	00:02:22
	Average Access Time	00:04:00	00:01:40	00:02:20	00:04:00	00:01:54	00:02:06	00:07:00	00:01:40	00:05:20
	Average Egress Time	00:05:00	00:05:06	00:00:06	00:05:00	00:05:26	00:00:26	00:02:00	00:04:24	00:02:24
	In-vehicle Time	00:21:00	00:20:25	00:00:35	00:27:00	00:27:27	00:00:28	00:23:00	00:26:50	00:03:50
	Transfer waiting Time	00:10:00	00:06:29	00:03:31	00:00:00	00:01:56	00:01:56	00:00:00	00:01:38	00:01:38
	Walk Time	00:00:00	00:02:56	00:02:56	00:02:00	00:05:39	00:03:39	00:05:00	00:04:51	00:00:09
	Number of Interchanges		1			1			1	

Route 5: Lower Earley to Woodley

Mode	Parameter	AM			IP			PM		
		Obs	Mod	Abs. Diff	Obs	Mod	Abs. Diff	Obs	Mod	Abs. Diff
Rail	Average Journey Time									
	Average Access Time									
	Average Egress Time									
	In-vehicle Time									
	Transfer waiting Time									
	Walk Time									
	Number of Interchanges									
Rail & Bus	Average Journey Time									
	Average Access Time									
	Average Egress Time									
	In-vehicle Time									
	Transfer waiting Time									
	Walk Time									
	Number of Interchanges									
Bus & Rail	Average Journey Time									
	Average Access Time									
	Average Egress Time									
	In-vehicle Time									
	Transfer waiting Time									
	Walk Time									
	Number of Interchanges									
Bus	Average Journey Time	00:48:00	00:40:53	00:07:07	00:37:00	00:34:50	00:02:10	00:41:00	00:43:02	00:02:02
	Average Access Time	00:04:00	00:05:26	00:01:26	00:05:00	00:05:26	00:00:26	00:02:00	00:05:18	00:03:18
	Average Egress Time	00:05:00	00:01:30	00:03:30	00:09:00	00:01:54	00:07:06	00:10:00	00:01:18	00:08:42
	In-vehicle Time	00:30:00	00:25:46	00:04:14	00:23:00	00:16:11	00:06:49	00:27:00	00:26:41	00:00:19

Mode	Parameter	AM			IP			PM		
		Obs	Mod	Abs. Diff	Obs	Mod	Abs. Diff	Obs	Mod	Abs. Diff
	Transfer waiting Time	00:09:00	00:02:56	00:06:04	00:00:00	00:01:12	00:01:12	00:00:00	00:03:49	00:03:49
	Walk Time	00:00:00	00:05:14	00:05:14	00:00:00	00:10:07	00:10:07	00:02:00	00:05:56	00:03:56
	Number of Interchanges		1			1			1	

Route 6: Reading to Oxford

Mode	Parameter	AM			IP			PM		
		Obs	Mod	Abs. Diff	Obs	Mod	Abs. Diff	Obs	Mod	Abs. Diff
Rail	Average Journey Time	00:51:00	00:52:04	00:01:04	00:54:00	00:52:04	00:01:56	00:58:00	00:55:14	00:02:46
	Average Access Time	00:11:00	00:10:25	00:00:35	00:11:00	00:10:25	00:00:35	00:11:00	00:10:25	00:00:35
	Average Egress Time	00:15:00	00:18:19	00:03:19	00:15:00	00:18:19	00:03:19	00:15:00	00:18:19	00:03:19
	In-vehicle Time	00:25:00	00:23:20	00:01:40	00:28:00	00:23:20	00:04:40	00:32:00	00:26:30	00:05:30
	Transfer waiting Time	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00
	Walk Time	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00
	Number of Interchanges		0			0			0	
Rail & Bus	Average Journey Time									
	Average Access Time									
	Average Egress Time									
	In-vehicle Time									
	Transfer waiting Time									
	Walk Time									
	Number of Interchanges									
Bus & Rail	Average Journey Time									
	Average Access Time									
	Average Egress Time									
	In-vehicle Time									
	Transfer waiting Time									

Mode	Parameter	AM			IP			PM		
		Obs	Mod	Abs. Diff	Obs	Mod	Abs. Diff	Obs	Mod	Abs. Diff
	Walk Time									
	Number of Interchanges									
Bus	Average Journey Time									
	Average Access Time									
	Average Egress Time									
	In-vehicle Time									
	Transfer waiting Time									
	Walk Time									
	Number of Interchanges									

Route 6: Oxford to Reading

Mode	Parameter	AM			IP			PM		
		Obs	Mod	Abs. Diff	Obs	Mod	Abs. Diff	Obs	Mod	Abs. Diff
Rail	Average Journey Time	00:51:00	00:55:14	00:04:14	00:50:00	00:52:04	00:02:04	00:50:00	00:52:04	00:02:04
	Average Access Time	00:15:00	00:18:19	00:03:19	00:15:00	00:18:19	00:03:19	00:21:00	00:18:19	00:02:41
	Average Egress Time	00:11:00	00:10:25	00:00:35	00:11:00	00:10:25	00:00:35	00:05:00	00:10:25	00:05:25
	In-vehicle Time	00:25:00	00:26:30	00:01:30	00:24:00	00:23:20	00:00:40	00:24:00	00:23:20	00:00:40
	Transfer waiting Time	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00
	Walk Time	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00
	Number of Interchanges		0			0			0	
Rail & Bus	Average Journey Time									
	Average Access Time									
	Average Egress Time									
	In-vehicle Time									
	Transfer waiting Time									
	Walk Time									

Mode	Parameter	AM			IP			PM		
		Obs	Mod	Abs. Diff	Obs	Mod	Abs. Diff	Obs	Mod	Abs. Diff
	Number of Interchanges									
Bus & Rail	Average Journey Time									
	Average Access Time									
	Average Egress Time									
	In-vehicle Time									
	Transfer waiting Time									
	Walk Time									
	Number of Interchanges									
Bus	Average Journey Time									
	Average Access Time									
	Average Egress Time									
	In-vehicle Time									
	Transfer waiting Time									
	Walk Time									
	Number of Interchanges									

Route 7: Reading to Central London

Mode	Parameter	AM			IP			PM		
		Obs	Mod	Abs. Diff	Obs	Mod	Abs. Diff	Obs	Mod	Abs. Diff
Rail	Average Journey Time	01:33:00	01:29:31	00:03:29	01:22:00	01:15:55	00:06:05	00:53:00	01:12:26	00:19:26
	Average Access Time	00:24:00	00:18:31	00:05:29	00:24:00	00:18:31	00:05:29	00:24:00	00:18:31	00:05:29
	Average Egress Time	00:18:00	00:20:00	00:02:00	00:18:00	00:20:00	00:02:00	00:18:00	00:20:00	00:02:00
	In-vehicle Time	00:43:00	00:46:20	00:03:20	00:33:00	00:30:23	00:02:37	00:34:00	00:30:20	00:03:40
	Transfer waiting Time	00:08:00	00:04:40	00:03:20	00:07:00	00:07:02	00:00:02	00:00:00	00:03:35	00:03:35
	Walk Time	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00
	Number of Interchanges		1			1			1	

Mode	Parameter	AM			IP			PM		
		Obs	Mod	Abs. Diff	Obs	Mod	Abs. Diff	Obs	Mod	Abs. Diff
Rail & Bus	Average Journey Time									
	Average Access Time									
	Average Egress Time									
	In-vehicle Time									
	Transfer waiting Time									
	Walk Time									
	Number of Interchanges									
Bus & Rail	Average Journey Time	01:28:00	01:11:03	00:16:57	01:30:00	01:10:28	00:19:32	01:36:00	01:10:51	00:25:09
	Average Access Time	00:01:00	00:01:35	00:00:35	00:01:00	00:01:35	00:00:35	00:07:00	00:01:35	00:05:25
	Average Egress Time	00:24:00	00:20:00	00:04:00	00:24:00	00:20:00	00:04:00	00:24:00	00:20:00	00:04:00
	In-vehicle Time	01:03:00	00:44:42	00:18:18	01:00:00	00:44:44	00:15:16	01:00:00	00:44:40	00:15:19
	Transfer waiting Time	00:00:00	00:00:48	00:00:48	00:01:00	00:00:26	00:00:34	00:01:00	00:00:29	00:00:31
	Walk Time	00:00:00	00:03:58	00:03:58	00:04:00	00:03:43	00:00:17	00:04:00	00:04:06	00:00:06
	Number of Interchanges		1			1			1	
Bus	Average Journey Time									
	Average Access Time									
	Average Egress Time									
	In-vehicle Time									
	Transfer waiting Time									
	Walk Time									
	Number of Interchanges									

Route 7: Central London to Reading

Mode	Parameter	AM			IP			PM		
		Obs	Mod	Abs. Diff	Obs	Mod	Abs. Diff	Obs	Mod	Abs. Diff
Rail	Average Journey Time	01:29:00	01:13:31	00:15:29	01:29:00	01:13:01	00:15:59	01:24:00	01:25:31	00:01:31

Mode	Parameter	AM			IP			PM		
		Obs	Mod	Abs. Diff	Obs	Mod	Abs. Diff	Obs	Mod	Abs. Diff
	Average Access Time	00:18:00	00:20:00	00:02:00	00:18:00	00:20:00	00:02:00	00:18:00	00:20:00	00:02:00
	Average Egress Time	00:24:00	00:18:31	00:05:29	00:24:00	00:18:31	00:05:29	00:24:00	00:18:31	00:05:29
	In-vehicle Time	00:30:00	00:30:00	00:00:00	00:31:00	00:28:00	00:03:00	00:35:00	00:45:00	00:10:00
	Transfer waiting Time	00:17:00	00:05:00	00:12:00	00:16:00	00:06:30	00:09:30	00:07:00	00:02:00	00:05:00
	Walk Time	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00
	Number of Interchanges		1			1			1	
Rail & Bus	Average Journey Time	01:17:00	01:15:40	00:01:20	01:20:00	01:09:40	00:10:20	01:22:00	01:07:40	00:14:20
	Average Access Time	00:24:00	00:20:00	00:04:00	00:24:00	00:20:00	00:04:00	00:24:00	00:20:00	00:04:00
	Average Egress Time	00:01:00	00:01:35	00:00:35	00:01:00	00:01:35	00:00:35	00:01:00	00:01:35	00:00:35
	In-vehicle Time	00:46:00	00:44:16	00:01:44	00:47:00	00:44:16	00:02:44	00:52:00	00:41:16	00:10:44
	Transfer waiting Time	00:04:00	00:06:45	00:02:45	00:04:00	00:00:45	00:03:15	00:01:00	00:01:45	00:00:45
	Walk Time	00:02:00	00:03:04	00:01:04	00:04:00	00:03:04	00:00:56	00:04:00	00:03:04	00:00:56
Bus & Rail	Number of Interchanges		1			1			1	
	Average Journey Time									
	Average Access Time									
	Average Egress Time									
	In-vehicle Time									
	Transfer waiting Time									
Bus	Walk Time									
	Number of Interchanges									
	Average Journey Time									
	Average Access Time									
	Average Egress Time									
	In-vehicle Time									
	Transfer waiting Time									
	Walk Time									
	Number of Interchanges									
	Average Journey Time									
	Average Access Time									
	Average Egress Time									
	In-vehicle Time									
	Transfer waiting Time									
	Walk Time									
	Number of Interchanges									
	Average Journey Time									
	Average Access Time									
	Average Egress Time									
	In-vehicle Time									
	Transfer waiting Time									
	Walk Time									
	Number of Interchanges									
	Average Journey Time									

Mode	Parameter	AM			IP			PM		
		Obs	Mod	Abs. Diff	Obs	Mod	Abs. Diff	Obs	Mod	Abs. Diff
	Number of Interchanges									

Route 8: Shinfield to Reading

Mode	Parameter	AM			IP			PM		
		Obs	Mod	Abs. Diff	Obs	Mod	Abs. Diff	Obs	Mod	Abs. Diff
Rail	Average Journey Time									
	Average Access Time									
	Average Egress Time									
	In-vehicle Time									
	Transfer waiting Time									
	Walk Time									
	Number of Interchanges									
Rail & Bus	Average Journey Time									
	Average Access Time									
	Average Egress Time									
	In-vehicle Time									
	Transfer waiting Time									
	Walk Time									
	Number of Interchanges									
Bus & Rail	Average Journey Time									
	Average Access Time									
	Average Egress Time									
	In-vehicle Time									
	Transfer waiting Time									
	Walk Time									
	Number of Interchanges									

Mode	Parameter	AM			IP			PM		
		Obs	Mod	Abs. Diff	Obs	Mod	Abs. Diff	Obs	Mod	Abs. Diff
Bus	Average Journey Time	00:30:00	00:28:59	00:01:01	00:28:00	00:30:20	00:02:20	00:31:00	00:30:20	00:00:40
	Average Access Time	00:04:00	00:03:16	00:00:44	00:04:00	00:03:16	00:00:44	00:04:00	00:03:16	00:00:44
	Average Egress Time	00:03:00	00:03:30	00:00:30	00:03:00	00:03:52	00:00:52	00:03:00	00:03:52	00:00:52
	In-vehicle Time	00:23:00	00:22:05	00:00:55	00:21:00	00:23:12	00:02:12	00:24:00	00:23:12	00:00:48
	Transfer waiting Time	00:00:00	00:00:08	00:00:08	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00
	Walk Time	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00
	Number of Interchanges		1			0			0	

Route 8: Reading to Shinfield

Mode	Parameter	AM			IP			PM		
		Obs	Mod	Abs. Diff	Obs	Mod	Abs. Diff	Obs	Mod	Abs. Diff
Rail	Average Journey Time									
	Average Access Time									
	Average Egress Time									
	In-vehicle Time									
	Transfer waiting Time									
	Walk Time									
	Number of Interchanges									
Rail & Bus	Average Journey Time									
	Average Access Time									
	Average Egress Time									
	In-vehicle Time									
	Transfer waiting Time									
	Walk Time									
	Number of Interchanges									

Mode	Parameter	AM			IP			PM		
		Obs	Mod	Abs. Diff	Obs	Mod	Abs. Diff	Obs	Mod	Abs. Diff
Bus & Rail	Average Journey Time									
	Average Access Time									
	Average Egress Time									
	In-vehicle Time									
	Transfer waiting Time									
	Walk Time									
	Number of Interchanges									
Bus	Average Journey Time	00:31:00	00:27:20	00:03:40	00:26:00	00:27:25	00:01:25	00:31:00	00:27:25	00:03:35
	Average Access Time	00:03:00	00:03:08	00:00:08	00:03:00	00:03:52	00:00:52	00:03:00	00:03:52	00:00:52
	Average Egress Time	00:04:00	00:03:16	00:00:44	00:04:00	00:03:16	00:00:44	00:04:00	00:03:16	00:00:44
	In-vehicle Time	00:24:00	00:20:38	00:03:22	00:19:00	00:20:17	00:01:17	00:24:00	00:20:17	00:03:43
	Transfer waiting Time	00:00:00	00:00:19	00:00:19	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00
	Walk Time	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00
	Number of Interchanges		1			0			0	

Route 9: Reading to Caversham

Mode	Parameter	AM			IP			PM		
		Obs	Mod	Abs. Diff	Obs	Mod	Abs. Diff	Obs	Mod	Abs. Diff
Rail	Average Journey Time									
	Average Access Time									
	Average Egress Time									
	In-vehicle Time									
	Transfer waiting Time									
	Walk Time									
	Number of Interchanges									
Rail & Bus	Average Journey Time									

Mode	Parameter	AM			IP			PM		
		Obs	Mod	Abs. Diff	Obs	Mod	Abs. Diff	Obs	Mod	Abs. Diff
	Average Access Time									
	Average Egress Time									
	In-vehicle Time									
	Transfer waiting Time									
	Walk Time									
	Number of Interchanges									
Bus & Rail	Average Journey Time									
	Average Access Time									
	Average Egress Time									
	In-vehicle Time									
	Transfer waiting Time									
	Walk Time									
Bus	Average Journey Time	00:21:00	00:17:54	00:03:06	00:22:00	00:17:54	00:04:06	00:23:00	00:17:54	00:05:06
	Average Access Time	00:05:00	00:02:23	00:02:37	00:05:00	00:02:23	00:02:37	00:05:00	00:02:23	00:02:37
	Average Egress Time	00:05:00	00:06:11	00:01:11	00:05:00	00:06:11	00:01:11	00:05:00	00:06:11	00:01:11
	In-vehicle Time	00:11:00	00:09:20	00:01:40	00:12:00	00:09:20	00:02:40	00:13:00	00:09:20	00:03:40
	Transfer waiting Time	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00
	Walk Time	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00
	Number of Interchanges		0			0			0	

Route 9: Caversham to Reading

Mode	Parameter	AM			IP			PM		
		Obs	Mod	Abs. Diff	Obs	Mod	Abs. Diff	Obs	Mod	Abs. Diff
Rail	Average Journey Time									
	Average Access Time									

Mode	Parameter	AM			IP			PM		
		Obs	Mod	Abs. Diff	Obs	Mod	Abs. Diff	Obs	Mod	Abs. Diff
	Average Egress Time									
	In-vehicle Time									
	Transfer waiting Time									
	Walk Time									
	Number of Interchanges									
Rail & Bus	Average Journey Time									
	Average Access Time									
	Average Egress Time									
	In-vehicle Time									
	Transfer waiting Time									
	Walk Time									
	Number of Interchanges									
Bus & Rail	Average Journey Time									
	Average Access Time									
	Average Egress Time									
	In-vehicle Time									
	Transfer waiting Time									
	Walk Time									
	Number of Interchanges									
Bus	Average Journey Time	00:24:00	00:16:50	00:07:10	00:23:00	00:16:50	00:06:10	00:24:00	00:16:50	00:07:10
	Average Access Time	00:05:00	00:06:11	00:01:11	00:05:00	00:06:11	00:01:11	00:05:00	00:06:11	00:01:11
	Average Egress Time	00:05:00	00:02:23	00:02:37	00:05:00	00:02:23	00:02:37	00:05:00	00:02:23	00:02:37
	In-vehicle Time	00:14:00	00:08:16	00:05:44	00:13:00	00:08:16	00:04:44	00:14:00	00:08:16	00:05:44
	Transfer waiting Time	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00
	Walk Time	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00
	Number of Interchanges		0			0			0	

Appendix A.2

FINAL ASSIGNMENT RESULTS

Updated rail link validation results

TP	Dir	In/out	Obs	Mod	GEH	GEH pass?	Flow pass?
AM	Reading - Wokingham	In	1553	1557	0.1	Yes	Yes
AM	Reading - Wokingham	Out	817	817	0.0	Yes	Yes
AM	Reading - Twyford	Out	6539	6000	6.8	No	Yes
AM	Reading - Twyford	In	1836	1800	0.8	Yes	Yes
AM	Reading - Reading West	Out	778	801	0.8	Yes	Yes
AM	Reading - Reading West	In	2314	2253	1.3	Yes	Yes
AM	Reading - Didcot Parkway	Out	1265	1292	0.8	Yes	Yes
AM	Reading - Didcot Parkway	In	3679	3554	2.1	Yes	Yes
IP	Reading - Wokingham	In	444	406	1.8	Yes	Yes
IP	Reading - Wokingham	Out	414	371	2.2	Yes	Yes
IP	Reading - Twyford	Out	2187	2017	3.7	Yes	Yes
IP	Reading - Twyford	In	1692	1550	3.5	Yes	Yes
IP	Reading - Reading West	Out	1103	1018	2.6	Yes	Yes
IP	Reading - Reading West	In	773	718	2.0	Yes	Yes
IP	Reading - Didcot Parkway	Out	983	991	0.3	Yes	Yes
IP	Reading - Didcot Parkway	In	1739	1682	1.4	Yes	Yes
PM	Reading - Wokingham	In	919	900	0.6	Yes	Yes
PM	Reading - Wokingham	Out	1715	1560	3.8	Yes	Yes
PM	Reading - Twyford	Out	3097	2894	3.7	Yes	Yes
PM	Reading - Twyford	In	6107	5649	6.0	No	Yes
PM	Reading - Reading West	Out	2937	2758	3.4	Yes	Yes
PM	Reading - Reading West	In	980	950	1.0	Yes	Yes
PM	Reading - Didcot Parkway	Out	3425	3385	0.7	Yes	Yes
PM	Reading - Didcot Parkway	In	2015	1981	0.8	Yes	Yes

Updated bus stop validation results

TP	Site location	Total passengers boarding				Total passengers alighting			
		Obs	Mod	GEH	Pass?	Obs	Mod	GEH	Pass?
AM	FE Friar Street	11	4	2.5	YES	0	11	4.7	YES
AM	FM Friars Street	46	54	1.1	YES	129	99	2.8	YES
AM	FH Friar Street	4	24	5.4	NO	86	21	8.9	NO
AM	FF Friar Street	0	0	0.0	YES	0	0	0.0	YES
AM	MQ Minister Street	2	0	1.9	YES	6	30	5.6	NO
AM	FC Friar Street	9	9	0.1	YES	13	30	3.6	YES
AM	EP Blagrove Street	39	50	1.6	YES	135	165	2.5	YES
AM	FL Friar Street	61	0	10.9	NO	52	14	6.6	NO
AM	MK King Street	0	4	2.7	YES	65	72	0.9	YES
AM	MA Market Place	58	9	8.4	NO	0	14	5.3	NO
AM	MB-MC Market Place	50	119	7.5	NO	2	17	4.8	YES
AM	MH Duke Street	0	9	4.2	YES	184	26	15.4	NO
AM	MM Minister Street	4	2	1.2	YES	40	111	8.2	NO
AM	MG Kings Road	1	0	1.4	YES	124	175	4.1	YES
AM	MF Kings Road	76	42	4.4	YES	0	30	7.8	NO
AM	CW Cheapside	68	8	9.7	NO	8	9	0.5	YES
AM	ME Kings Road	63	48	2.0	YES	12	10	0.6	YES
AM	MI Bridge Street	4	2	1.0	YES	75	10	10.0	NO
AM	CV Oxford Road	8	0	3.9	YES	217	29	17.0	NO
AM	EL Forbury Road	29	33	0.8	YES	5	1	2.6	YES
AM	EO Blagrove Street	51	52	0.1	YES	12	23	2.6	YES
AM	EH (RAIL AIR)	29	23	1.3	YES	10	17	1.9	YES
AM	EN Forbury Road	291	230	3.8	YES	28	43	2.5	YES
AM	XX Kings Road	0	14	5.2	NO	26	9	4.2	YES
AM	YY Kings Road	7	5	0.9	YES	1	3	1.3	YES
AM	CZ Cheapside	0	10	4.5	YES	0	9	4.1	YES
AM	EA Station Road	98	106	0.8	YES	16	28	2.5	YES

AM	Station North	35	1	7.9	NO	88	0	13.2	NO
AM	Castle Street	65	17	7.4	NO	3	37	7.6	NO
AM	Station Road	155	169	1.1	YES	180	140	3.2	YES
AM	Tesco Wokingham	0	1	1.2	YES	0	3	2.5	YES
AM	Alderman Willey Close	0	2	2.0	YES	0	17	5.7	NO
AM	Broad Street	9	11	0.6	YES	0	28	7.4	NO
AM	Station Road	142	3	16.3	NO	417	331	4.4	YES
IP	FE Friar Street	40	11	5.9	NO	1	10	3.9	YES
IP	FM Friars Street	61	54	0.9	YES	51	46	0.8	YES
IP	FH Friar Street	34	30	0.7	YES	63	47	2.2	YES
IP	FF Friar Street	0	0	0.0	YES	1	0	1.4	YES
IP	MQ Minister Street	20	1	5.8	NO	27	25	0.3	YES
IP	FC Friar Street	34	21	2.5	YES	37	33	0.7	YES
IP	EP Blagrove Street	46	49	0.4	YES	100	97	0.2	YES
IP	FL Friar Street	82	1	12.6	NO	46	5	8.1	NO
IP	MK King Street	0	8	4.0	YES	53	36	2.4	YES
IP	MA Market Place	118	12	13.2	NO	1	6	2.7	YES
IP	MB-MC Market Place	19	54	5.8	NO	1	12	4.3	YES
IP	MH Duke Street	0	32	7.9	NO	84	27	7.7	NO
IP	MM Minister Street	23	10	3.1	YES	54	47	1.0	YES
IP	MG Kings Road	4	0	2.6	YES	67	38	4.0	YES
IP	MF Kings Road	64	36	3.9	YES	1	7	3.0	YES
IP	CW Cheapside	153	132	1.7	YES	10	10	0.1	YES
IP	ME Kings Road	85	69	1.8	YES	13	4	3.0	YES
IP	MI Bridge Street	1	6	3.0	YES	28	10	4.1	YES
IP	CV Oxford Road	4	0	2.6	YES	241	26	18.6	NO
IP	EL Forbury Road	63	32	4.5	YES	7	4	1.2	YES
IP	EO Blagrove Street	23	21	0.3	YES	7	34	6.0	NO
IP	EH (RAIL AIR)	23	22	0.2	YES	21	11	2.5	YES
IP	EN Forbury Road	8	37	6.2	NO	34	105	8.6	NO

IP	XX Kings Road	6	9	1.2	YES	4	7	1.2	YES
IP	YY Kings Road	1	5	2.2	YES	3	2	0.8	YES
IP	CZ Cheapside	6	6	0.1	YES	0	2	1.8	YES
IP	EA Station Road	44	54	1.3	YES	9	61	8.8	NO
IP	Station North	16	9	2.0	YES	27	6	5.3	NO
IP	Castle Street	50	29	3.3	YES	2	24	6.0	NO
IP	Station Road	108	84	2.4	YES	44	30	2.3	YES
IP	Tesco Wokingham	5	5	0.0	YES	5	2	1.2	YES
IP	Alderman Willey Close	0	1	1.6	YES	0	1	1.7	YES
IP	Broad Street	39	6	7.1	NO	4	18	4.2	YES
IP	Station Road	33	2	7.5	NO	124	92	3.1	YES
PM	FE Friar Street	86	11	10.8	NO	0	15	5.5	NO
PM	FM Friars Street	74	82	0.9	YES	17	25	1.7	YES
PM	FH Friar Street	58	52	0.8	YES	80	65	1.8	YES
PM	FF Friar Street	0	0	0.0	YES	0	0	0.0	YES
PM	MQ Minister Street	20	2	5.6	NO	4	67	10.5	NO
PM	FC Friar Street	35	24	2.0	YES	22	28	1.2	YES
PM	EP Blagrove Street	43	53	1.4	YES	195	202	0.5	YES
PM	FL Friar Street	46	0	9.6	NO	36	20	3.0	YES
PM	MK King Street	0	20	6.3	NO	6	87	11.8	NO
PM	MA Market Place	212	20	17.8	NO	0	15	5.5	NO
PM	MB-MC Market Place	63	78	1.8	YES	5	12	2.4	YES
PM	MH Duke Street	2	34	7.6	NO	90	26	8.3	NO
PM	MM Minister Street	69	27	6.0	NO	63	73	1.2	YES
PM	MG Kings Road	14	0	5.3	NO	79	64	1.7	YES
PM	MF Kings Road	119	87	3.2	YES	0	9	4.3	YES
PM	CW Cheapside	270	229	2.6	YES	17	12	1.2	YES
PM	ME Kings Road	101	95	0.6	YES	12	2	3.7	YES
PM	MI Bridge Street	0	5	3.0	YES	52	8	8.1	NO
PM	CV Oxford Road	8	0	4.0	YES	117	32	9.9	NO

PM	EL Forbury Road	102	104	0.2	YES	10	7	1.2	YES
PM	EO Blagrove Street	52	48	0.6	YES	3	84	12.3	NO
PM	EH (RAIL AIR)	19	21	0.5	YES	44	32	2.0	YES
PM	EN Forbury Road	9	43	6.7	NO	287	332	2.6	YES
PM	XX Kings Road	13	27	3.1	YES	5	13	2.7	YES
PM	YY Kings Road	4	8	1.8	YES	2	6	1.8	YES
PM	CZ Cheapside	6	23	4.4	YES	0	5	3.2	YES
PM	EA Station Road	22	28	1.1	YES	10	21	2.8	YES
PM	Station North	45	6	7.7	NO	93	0	13.5	NO
PM	Castle Street	79	69	1.2	YES	14	21	1.7	YES
PM	Station Road	200	166	2.5	YES	48	39	1.4	YES
PM	Tesco Wokingham	0	0	0.0	YES	0	0	0.0	YES
PM	Alderman Willey Close	0	0	0.0	YES	0	3	2.6	YES
PM	Broad Street	21	14	1.8	YES	0	27	7.4	NO
PM	Station Road	67	5	10.3	NO	225	171	3.8	YES

Updated rail stop validation results

TP	Site location	Total passengers boarding				Total passengers alighting			
		Obs	Mod	GEH	Pass?	Obs	Mod	GEH	Pass?
AM	Martins Heron Station	102	109	0.7	YES	17	26	2.0	YES
AM	Oxford	1143	1208	1.9	YES	1048	1108	1.8	YES
AM	Radley	56	41	2.2	YES	30	20	1.9	YES
AM	Culham	35	0	8.4	NO	21	0	6.5	NO
AM	Appleford	7	0	3.7	YES	5	0	3.2	YES
AM	Didcot Parkway	1122	1102	0.6	YES	563	498	2.8	YES
AM	Cholsey	64	71	0.9	YES	29	29	0.0	YES
AM	Goring & Streatley	82	93	1.1	YES	37	40	0.5	YES
AM	Pangbourne	151	131	1.6	YES	51	50	0.1	YES
AM	Tilehurst	174	174	0.0	YES	68	78	1.1	YES
AM	Reading West	32	40	1.4	YES	20	27	1.4	YES

AM	Reading	5016	944	74.6	NO	4999	2607	38.8	NO
AM	Mortimer	53	46	0.9	YES	22	22	0.0	YES
AM	Basingstoke	2015	Error	0.0	YES	1163	Error	0.0	YES
AM	Earley	187	160	2.1	YES	90	71	2.1	YES
AM	Winnersh Triangle	163	136	2.2	YES	74	59	1.8	YES
AM	Winnersh	189	168	1.6	YES	99	81	1.9	YES
AM	Wokingham	716	718	0.1	YES	414	465	2.4	YES
AM	Bracknell	467	521	2.4	YES	455	505	2.3	YES
AM	Crowthorne	98	86	1.3	YES	53	49	0.6	YES
AM	Sandhurst Berks	48	59	1.5	YES	28	38	1.7	YES
AM	Ascot Berks	283	237	2.9	YES	173	147	2.1	YES
AM	Egham	526	463	2.8	YES	353	309	2.4	YES
AM	Staines	866	778	3.1	YES	445	428	0.8	YES
AM	Maidenhead	1632	1391	6.2	NO	897	776	4.2	YES
AM	Twyford	722	622	3.9	YES	269	290	1.3	YES
AM	Wargrave	14	16	0.6	YES	10	15	1.4	YES
AM	Shiplake	13	22	2.1	YES	8	22	3.6	YES
AM	Henley On Thames	86	94	0.8	YES	112	117	0.4	YES
AM	Bramley/Hook	306	329	1.3	YES	137	151	1.1	YES
AM	Bagshot/Camberley /Frimley/Blackwater	256	268	0.7	YES	196	210	0.9	YES
AM	Farnborough/Fleet/ Winchfield	615	624	0.4	YES	205	231	1.8	YES
AM	Bagshot/Camberley /Frimley/Sunningdale	221	199	1.5	YES	138	118	1.7	YES
AM	Newbury/Thatcham	488	518	1.3	YES	319	296	1.3	YES
AM	Virginia Water/Chertsey	386	398	0.6	YES	310	343	1.8	YES
IP	Martins Heron Station	19	46	4.7	YES	9	63	9.0	NO
IP	Oxford	525	567	1.8	YES	503	507	0.2	YES
IP	Radley	9	2	2.9	YES	8	2	2.9	YES
IP	Culham	2	0	2.0	YES	2	0	2.0	YES

IP	Appleford	0	0	0.8	YES	0	0	0.8	YES
IP	Didcot Parkway	276	281	0.3	YES	238	235	0.2	YES
IP	Cholsey	18	18	0.0	YES	16	16	0.0	YES
IP	Goring & Streatley	28	28	0.1	YES	25	24	0.2	YES
IP	Pangbourne	26	27	0.1	YES	26	26	0.0	YES
IP	Tilehurst	28	31	0.4	YES	28	30	0.4	YES
IP	Reading West	12	13	0.3	YES	12	14	0.5	YES
IP	Reading	1743	561	34.8	NO	1705	604	32.4	NO
IP	Mortimer	11	11	0.1	YES	11	13	0.5	YES
IP	Basingstoke	494	Error	0.0	YES	457	Error	0.0	YES
IP	Earley	42	30	2.0	YES	38	30	1.3	YES
IP	Winnersh Triangle	31	22	1.6	YES	29	21	1.5	YES
IP	Winnersh	33	27	1.1	YES	31	22	1.7	YES
IP	Wokingham	184	185	0.1	YES	173	180	0.5	YES
IP	Bracknell	148	160	1.0	YES	131	145	1.2	YES
IP	Crowthorne	20	19	0.3	YES	19	20	0.3	YES
IP	Sandhurst Berks	10	50	7.3	NO	9	71	9.8	NO
IP	Ascot Berks	149	112	3.2	YES	130	99	2.9	YES
IP	Egham	162	152	0.8	YES	137	127	0.9	YES
IP	Staines	206	202	0.3	YES	188	188	0.0	YES
IP	Maidenhead	298	262	2.1	YES	262	233	1.9	YES
IP	Twyford	174	160	1.0	YES	163	156	0.5	YES
IP	Wargrave	5	9	1.8	YES	4	14	3.2	YES
IP	Shiplake	5	6	0.2	YES	5	7	0.9	YES
IP	Henley On Thames	52	49	0.4	YES	42	41	0.0	YES
IP	Bramley/Hook	66	72	0.7	YES	58	66	1.0	YES
IP	Bagshot/Camberley /Frimley/Blackwater	81	84	0.4	YES	75	78	0.4	YES
IP	Farnborough/Fleet/ Winchfield	120	133	1.2	YES	96	109	1.3	YES
IP	Bagshot/Camberley /Frimley/Sunningdale	78	65	1.5	YES	62	55	0.8	YES

IP	Newbury/Thatcham	155	173	1.4	YES	145	175	2.4	YES
IP	Virginia Water/Chertsey	123	132	0.8	YES	105	115	1.0	YES
PM	Martins Heron Station	25	31	1.1	YES	70	76	0.8	YES
PM	Oxford	1155	1193	1.1	YES	999	1022	0.7	YES
PM	Radley	20	17	0.8	YES	36	24	2.2	YES
PM	Culham	14	0	5.3	NO	27	0	7.3	NO
PM	Appleford	3	0	2.4	YES	4	0	2.8	YES
PM	Didcot Parkway	631	617	0.6	YES	1131	1072	1.8	YES
PM	Cholsey	25	26	0.2	YES	59	59	0.0	YES
PM	Goring & Streatley	32	36	0.6	YES	84	82	0.2	YES
PM	Pangbourne	37	39	0.4	YES	97	86	1.2	YES
PM	Tilehurst	44	50	0.9	YES	172	165	0.5	YES
PM	Reading West	18	21	0.7	YES	29	33	0.8	YES
PM	Reading	5599	2623	46.4	NO	4446	826	70.5	NO
PM	Mortimer	19	17	0.5	YES	49	45	0.7	YES
PM	Basingstoke	1039	Error	0.0	YES	1496	Error	0.0	YES
PM	Earley	81	64	2.0	YES	201	174	1.9	YES
PM	Winnersh Triangle	60	54	0.9	YES	125	102	2.1	YES
PM	Winnersh	67	66	0.1	YES	129	115	1.3	YES
PM	Wokingham	330	353	1.3	YES	627	618	0.3	YES
PM	Bracknell	496	525	1.3	YES	498	534	1.6	YES
PM	Crowthorne	39	38	0.2	YES	111	101	0.9	YES
PM	Sandhurst Berks	20	27	1.4	YES	56	63	0.9	YES
PM	Ascot Berks	193	164	2.2	YES	297	257	2.4	YES
PM	Egham	291	271	1.2	YES	397	371	1.3	YES
PM	Staines	418	403	0.7	YES	589	567	0.9	YES
PM	Maidenhead	920	835	2.9	YES	1585	1390	5.0	NO
PM	Twyford	357	373	0.8	YES	685	627	2.3	YES
PM	Wargrave	8	21	3.3	YES	23	17	1.4	YES
PM	Shiplake	7	12	1.7	YES	21	12	2.1	YES

PM	Henley On Thames	93	93	0.0	YES	210	193	1.2	YES
PM	Bramley/Hook	101	107	0.6	YES	271	280	0.5	YES
PM	Bagshot/Camberley /Frimley/Blackwater	132	144	1.0	YES	214	219	0.3	YES
PM	Farnborough/Fleet/ Winchfield	165	180	1.1	YES	477	490	0.6	YES
PM	Bagshot/Camberley /Frimley/Sunningdale	102	90	1.2	YES	167	159	0.6	YES
PM	Newbury/Thatcham	257	275	1.1	YES	740	797	2.1	YES
PM	Virginia Water/Chertsey	223	237	0.9	YES	319	329	0.5	YES



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