



SHEFFIELD CITY COUNCIL Independent Cabinet Member Decision

Report of: Executive Director, Place

Date: 14th November 2013

Subject: MOSBOROUGH KEY BUS ROUTE: SIGNALISING THE JUNCTION OF BIRLEY MOOR ROAD AND OCCUPATION LANE

Author of Report: Cate Jockel

Summary: This report seeks Cabinet Member approval to implement the scheme to signalise this junction, as part of the Mosborough Key Bus Route works.

Reasons for Recommendations:

The scheme is part of the Mosborough Bus Key Route – the 120 bus route – which is one of the best-used high frequency public transport services in the City. The Key Route contributes to the City Council’s objectives of improving socially-inclusive access to jobs; improving access to mainstream public transport for all; and improving public transport in order to increase its usage. It aims to make bus journeys on this main route quicker and more reliable through infrastructure improvements and improving network management and enforceability at critical locations. At this location, it is felt that the significant benefits to bus journey times and reliability on this high frequency service make it worth doing and that there is adequate mitigation.

Recommendations:

Implement the scheme in 2013/14 including the placement of traffic signs using the Department for Transport’s Better Bus Area Fund provision.

Background Papers: NONE

Category of Report: OPEN

Statutory and Council Policy Checklist

Article I. Financial Implications
YES Cleared by Matt Bullock
Article II. Legal Implications
YES Cleared by Deborah Eaton
Equality of Opportunity Implications
YES Cleared by Ian Oldershaw
Tackling Health Inequalities Implications
NO
Human rights Implications
NO
Environmental and Sustainability implications
NO
Economic impact
NO
Community safety implications
NO
Human resources implications
NO
Property implications
NO
Area(s) affected
South-East (Birley)
Relevant Cabinet Portfolio Leader
Leigh Bramall
Relevant Scrutiny Committee if decision called in
Economic and Environmental Wellbeing
Is the item a matter which is reserved for approval by the City Council?
NO
Press release
NO

REPORT FOR INDIVIDUAL CABINET MEMBER DECISION

14 NOVEMBER 2013

MOSBOROUGH KEY BUS ROUTE: SIGNALISING THE JUNCTION OF BIRLEY MOOR ROAD AND OCCUPATION LANE

1. SUMMARY

- 1.1 This report seeks Cabinet Member approval to implement the scheme to signalise this junction, as part of the Mosborough Key Bus Route works.

2. WHAT DOES THIS MEAN FOR SHEFFIELD PEOPLE?

- 2.1 The scheme is one of the improvements being progressed as part of the Mosborough Key Bus Route – the 120 bus route – which is one of the best-used public transport services in the City. It is high-frequency and operated by many low-pollution hybrid buses.
- 2.2 One of the critical aims of the Key Bus Route work is to improve journey time and journey time reliability of this service between the City Centre and Mosborough. Appendix A shows the location of this Key Bus Route and this scheme. Service 120 runs from Halfway to Fulwood and is operated by both Stagecoach and First, with Stagecoach running a service every 8 minutes between Halfway and the Hallamshire Hospital and First running a service every 8 minutes between Crystal Peaks and Fulwood. Between Crystal Peaks and the Hallamshire Hospital, the combined frequency is every 4 minutes (and, under the terms of the Sheffield Bus Partnership, is timetabled as such).

3. OUTCOME AND SUSTAINABILITY

- 3.1 The project contributes towards many of the objectives set out in ‘Standing Up for Sheffield: Corporate Plan 2011-2014’:
- better public transport provides socially-inclusive access to jobs;
 - better access for all on mainstream public transport, increasing independence for those with mobility problems and improving social fairness;
 - better public transport increases public transport use and contributes to the “sustainable and safe transport” objective.

4. REPORT

Introduction

- 4.1 The Mosborough Key Bus Route is part of the work being carried out through the Better Buses Area Fund (first round), funded by the Department for Transport. This is based around the themes of:

- **Smart Ticketing:** multi-operator ticketing solutions and more cost-effective travel for young people looking to access work or training;
- **Smart Infrastructure:** making bus journeys on main routes faster and more reliable through infrastructure improvements; and
- **Smart Management:** ensuring that the network is effectively managed and enforced to improve journey times and efficiency at identified pinch points.

The development through to implementation (subject to normal processes) of the Key Bus Route proposals was approved by Cabinet Highways Committee on 11 October 2012.

4.2 The Better Bus Area Fund programme is co-ordinated by the South Yorkshire Passenger Transport Executive (SYPTe) working closely with the City Council and the other Districts.

Birley Moor Road/Occupation Lane junction

4.3 Journey time data shows that buses are delayed as they make the right turn from Occupation Lane into Birley Moor Road which is currently an uncontrolled junction. Delay data has been provided by SYPTe in the form of journey time graphs (attached as Appendix B) and shows variance in this delay at all times of day. The combined frequency of the 120 bus service here is every 4 minutes and one of the main aims of the Key Bus Route works is to reduce delay and make journey times more consistent.

4.4 The proposed scheme at this junction seeks to reduce this delay and improve reliability by implementing traffic signals so that inbound buses have a shorter and more consistent wait at this junction. This enables a shorter overall journey time and greater reliability for this well-used high frequency service. In addition to that, the signals will include 'Real-Time Intelligent Detection' (RID) which acts to boost any buses that are running late as they approach the junction. (Signals which already have this facility in the city are currently being triggered by buses running more than one minute late).

4.5 In general terms, under a fixed 60 second cycle time (the time taken for a set of signals at a junction to go through its complete sequence), Birley Moor Road would receive between 21 and 27 seconds green time, with Occupation Lane receiving between 8 and 13 seconds green time at peak times. These times would be dependent on how often the pedestrian crossing is called (and are based on an average pedestrian clearance period). However, the junction will include RID to boost late-running buses, both inbound and outbound, as mentioned above. It will also include "MOVA" technology, which helps to accommodate variations in traffic flows, minimising delays by altering the signal timings to maximise the capacity at any given time.

4.6 There is an existing controlled pedestrian crossing located to the north west of the junction on Birley Moor Road. This is retained within the signalised arrangement. The majority of pedestrians cross at this leg of the three-leg junction (over 60% according to a 12-hour count carried out in November 2012).

4.7 There is a downside to signalising this junction, which is that it is at the expense of increasing delay to the main road (interrupting the free-flow condition). There are currently two interruptions to this: from the pedestrian crossing; and from any traffic waiting to turn right into Occupation Lane. This scheme would add in another interruption (to allow traffic out of Occupation Lane) but would remove one of the existing interruptions: it includes a new right-turn pocket lane so that inbound main road traffic is not held up by that. Also in mitigation, “MOVA” technology as described above will minimise delay to reflect traffic conditions. The additional average delay for main road traffic is modelled as between 10 and 20 seconds depending on time of day and direction. There is less delay than currently for Occupation Lane traffic, especially late-running buses which will get a boost from the RID detection. There is also less delay for inbound main road traffic as a result of right-turners: currently these (occasional) delays can be for over a minute at a time.

4.8 An Indicative Plan of the scheme is attached as Appendix C. SYPTTE is leading the work on the Mosborough Key Bus Route and has undertaken consultation with Ward Councillors, local residents, the emergency services and the usual standard consultees. Two responses were received: one from South Yorkshire Police raising no objection; and one from a resident of Birley Moor Close who was in favour of the scheme and wanted more information on when the works would be carried out and what the impact on the Close will be while works are on-going. If the scheme is approved, it is provisionally scheduled to be on site in January. Amey will provide more information on construction matters, including to residents, nearer that time.

Summary

4.9 Provision of signals will reduce delay and improve reliability for bus passengers on this very high frequency route, especially where the bus is running late. In these instances, it can all the signals using RID detection. There is some additional delay for Birley Moor Road traffic but the right-turn pocket lane from Birley Moor Road into Occupation Lane will remove a current cause of significant main road delay and the introduction of MOVA will enable the junction to operate to best effect.

Relevant Implications

4.10 Financial: scheme costs are £162,100 excluding Statutory Undertakers (SU's) and commuted sums: the design has been amended to reduce both SU and Works costs. The scheme is funded through the Mosborough Key Bus Route capital allocation (which is a combination of funding from the Better Bus Area Fund from the Department for Transport and the South Yorkshire Local Transport Plan). The future maintenance cost of the scheme will be covered via accrual to the Streets Ahead contract with a commuted sum. This is part of the £50,000 identified in the revenue implication section of the Sheffield Bus Partnership Capital Approval.

4.11 Equalities: an Equalities Impact Assessment has been signed off for the Key Bus Route as a whole as generally positive for all Sheffield people regardless of age, sex, race, faith, disability, sexuality, etc and particularly positive for disabled and elderly people plus carers, as well as families with children. No negative equality impacts were identified. This is attached as Appendix D Mosborough Key Bus Route EIA.

4.12 Legal: The Council, as the Highway Authority for Sheffield, has powers under Part V of the Highways Act 1980 to implement the improvements requested in this report. As the Traffic Authority the Council also has the power under the Road Traffic Regulation Act 1984 to place traffic signals and in exercising that power the Council must be satisfied that it will secure the expeditious, convenient and safe movement of vehicular and other traffic (including pedestrians). Provided the Council is so satisfied, it is acting lawfully and within its powers.

5. ALTERNATIVE OPTIONS CONSIDERED

5.1 Two other options were considered. One was to signalise the existing junction, incorporating the existing pedestrian crossing, without any mitigation for main road traffic other than signal technology (MOVA). This was cheaper than the budget estimate received for the preferred option. However, it exacerbates existing delays and causes additional queues all-round. (Cost Estimate £164k, excluding Commuted Sum).

5.2 The other option considered was to signalise the existing junction, incorporating the existing pedestrian crossing, and provide a near-side passing space (i.e. widen the carriageway) so that straight-ahead traffic inbound on Birley Moor Road could pass right-turning traffic. (Cost Estimate £199k, excluding Commuted Sum). This option was only developed because the preferred option initially affected more SU equipment and was more costly. However, the preferred scheme cost has been reduced through amending the design but retaining the right-turn pocket.

5.3. The three options have been modelled by Amey in respect of the impact on delay, queue length and reserve capacity at morning peak, evening peak and peak pedestrian crossing time (after school). It is considered that the preferred option is the best all-round option for signalising the junction, having the least impact on main road traffic.

5.4 The other alternative option would be to do nothing. However, it is felt that the significant benefits to bus journey times and reliability on this high frequency service make it worth doing and that there is adequate mitigation.

6. REASONS FOR RECOMMENDATIONS

6.1 The scheme is part of the Mosborough Bus Key Route – the 120 bus route – which is one of the best-used high frequency public transport services in the City. The Key Route contributes to the City Council’s objectives of improving socially-inclusive access to jobs; improving access to mainstream public transport for all; and improving public transport in order to increase its usage. It aims to make bus

journeys on this main route quicker and more reliable through infrastructure improvements and improving network management and enforceability at critical locations. At this location, it is felt that the significant benefits to bus journey times and reliability on this high frequency service make it worth doing and that there is adequate mitigation.

6. RECOMMENDATIONS

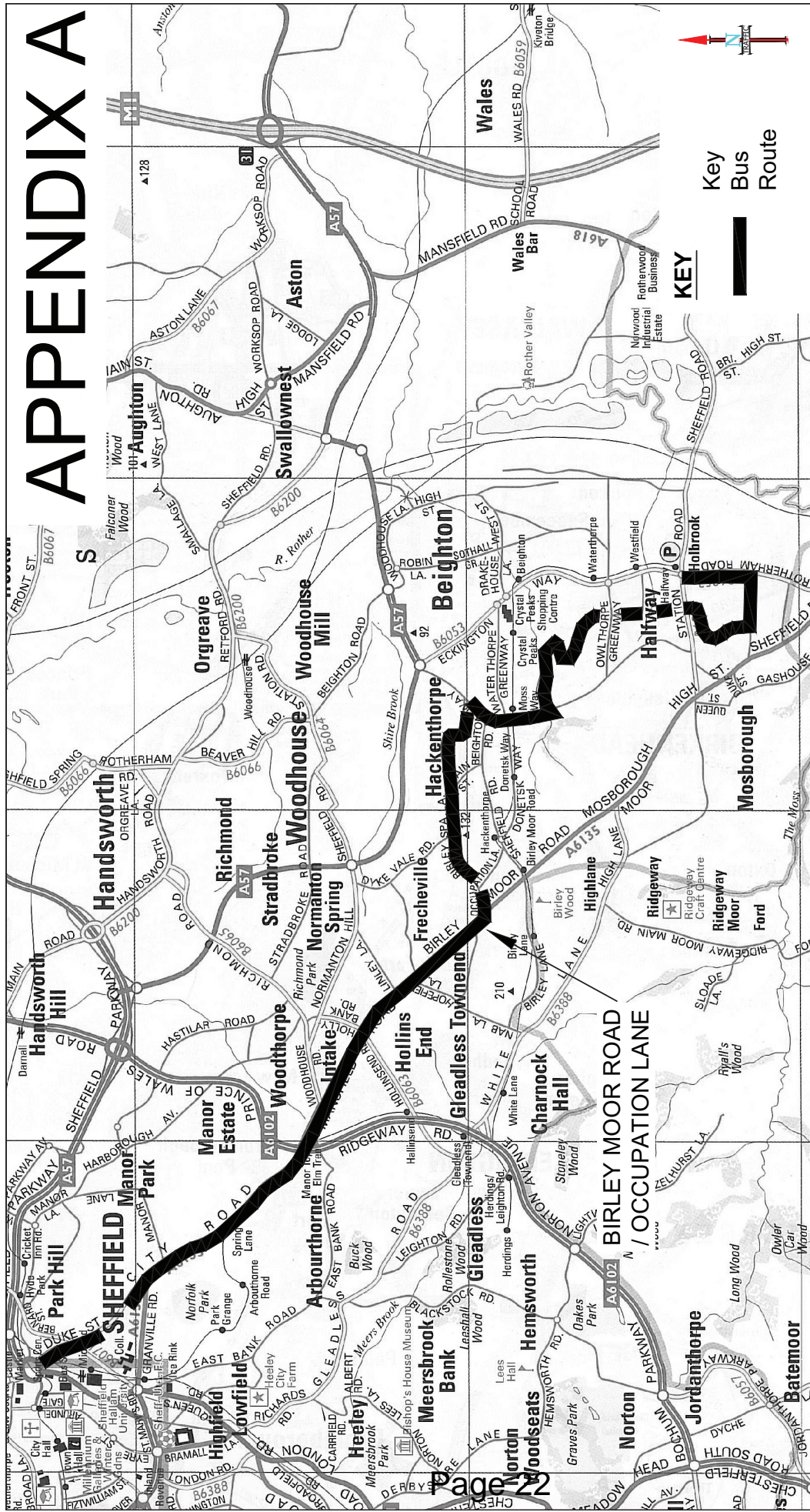
7.1 To implement the scheme in 2013/14 including the placement of traffic signs using the Department for Transport's Better Bus Area Fund provision.

Simon Green

Executive Director, Place

14 November 2013

APPENDIX A



SHEFFIELD CITY COUNCIL Client Scheme Drawing Title	Drawing No. TM / LT063 / P1	SHEFFIELD City Council 	TRAFFIC MANAGEMENT
	Scale NOT TO SCALE A4		
SHEFFIELD CITY COUNCIL City Centre To Mosborough Key Bus Route Location Plan	Client SHEFFIELD CITY COUNCIL	Scheme City Centre To Mosborough Key Bus Route	Drawing Title Location Plan
DEVELOPMENT SERVICES TRANSPORT & HIGHWAYS DIVISION TRAFFIC SECTION 2-10 CARBROOK HALL ROAD SHEFFIELD S9 2DB Tel. 0114-273-6175 Fax. 0114-273-6182 E-mail Traffic.Management@Sheffield.gov.uk Director: L.Sturch M.R.T.P.I. Development Services	Do not scale from this drawing • Any errors/omissions to be reported immediately • If in doubt, ask • This drawing is based upon Ordnance Survey material with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationery Office. © Crown Copyright. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings. 100018816. 2011	DRAWN JWB OCT 2013	CHECKED
A Service Area of Place Sheffield City Council			

Sheffield - Mosborough RTI data

For: Praveena Mohanamurali
By: Mike Wood
Request: 1120/3

On: 17 May 2013

Data Range: October 2012

Source: [ACIS Real Time Information](#)

Comments: RTI actual and schedule journey time data for all service 120 journeys (First and Stagecoach) tracked in October 2012 have been used in this analysis.

See the tab 'Summary Data' for a list of stops used, and the headline results on average journey times and average approximate speeds.

An overall average actual journey time value has been plotted, which takes the average journey time of all the values in the series of average journey time for all journeys by arrival at the first stop in the study area in 10 minute intervals.

Where schedule times have been graphed, this shows the maximum scheduled time for the service 120 (irrespective of operator) in that time period.

RTI schedule journey time information is reliant on the data available in ACIS, which has no guarantee on accuracy. As non-timing point stops have no requirement for a schedule running time in some cases this is approximate, and should be treated with

Note

All data included in this document is restricted under the Real Time Information Agreed Uses. It must not be distributed to anyone or used for purposes other than covered under the agreement.

Stop locations

		From	To
Occupation Lane/Birley Moor Road1	Inbound	21578	21580
Occupation Lane/Birley Moor Road2	Outbound	21581	21579

Summary

			Average Actual Journey Time	Average Schedule Journey Time	Difference	Standard Deviation of Actual Journey Time
Occupation Lane/Birley Moor Road1	Inbound	Weekday	1.37	1.00	0.37	0.6
		AM Peak	1.12	1.00	0.12	0.5
		Interpeak	1.14	1.00	0.14	0.5
	Saturday	Morning	1.33	1.00	0.33	0.9
		Peak Period	1.22	1.00	0.22	0.6
		Evening	1.20	1.00	0.20	0.6
Occupation Lane/Birley Moor Road2	Outbound	Weekday	0.66	0.85	-0.18	0.2
		AM Peak	0.70	1.00	-0.30	0.2
		Interpeak	0.70	0.55	0.15	0.2
	Saturday	PM Peak	0.64	0.88	-0.23	0.2
		Morning	0.71	1.00	-0.29	0.3
		Peak Period	0.67	0.82	-0.16	0.2
Evening						

*Please note all values are subject to rounding and given in decimal units of minutes (i.e. 1.50 equals 1 minute and 30 seconds)

Time Periods

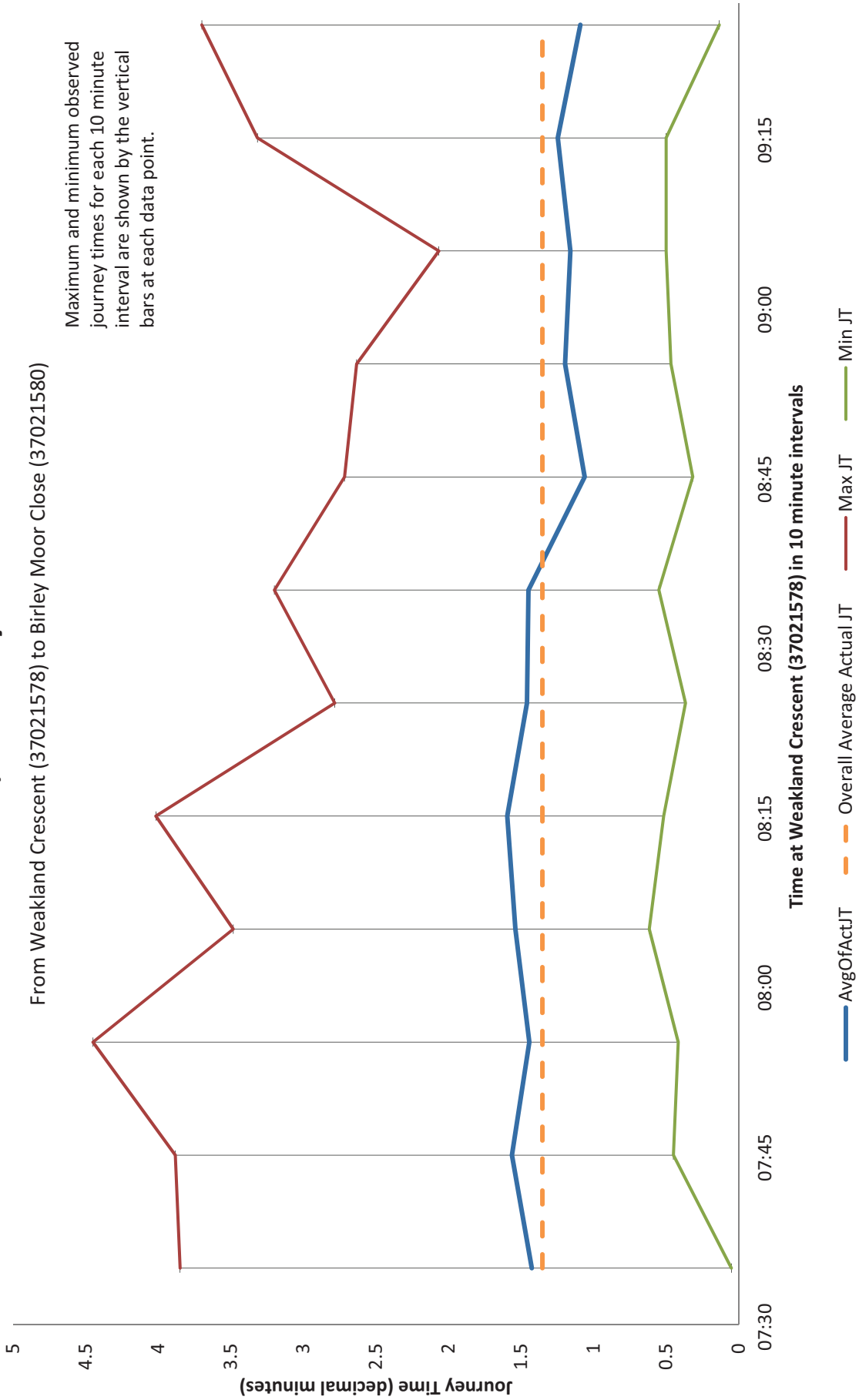
		From	To
Weekday	AM Peak	07:30	09:30
	Interpeak	09:30	16:00
	PM Peak	16:00	19:00
Saturday	Morning	07:00	11:00
	Peak Period	11:00	16:00
	Evening	16:00	19:00

Month	Area	Direction	Description	Weekday1	PeakPeriod	AvgOfActJT	AvgOfSchJT	CountOfActJT	CountOfSchJT	StDevOfActJT	StDevOfSchJT
10	3	Inbound	Occupation Lane / Birley Moor Road	Weekday	AM Peak	1.365924903	1	518	518	0.634449128	0
10	3	Inbound	Occupation Lane / Birley Moor Road	Weekday	Inter Peak	1.118352835	1	1711	1711	0.54962082	0
10	3	Inbound	Occupation Lane / Birley Moor Road	Weekday	PM Peak	1.137530229	1	612	612	0.524742592	0
10	3	Inbound	Occupation Lane / Birley Moor Road	Saturday	Morning	1.330951786	1	168	168	0.930472868	0
10	3	Inbound	Occupation Lane / Birley Moor Road	Saturday	Peak Period	1.222473232	1	198	198	0.598618441	0
10	3	Inbound	Occupation Lane / Birley Moor Road	Saturday	Evening	1.199485567	1	97	97	0.64252394	0
Month	Area	Direction	Description	Weekday1	PeakPeriod	AvgOfActJT	AvgOfSchJT	CountOfActJT	CountOfSchJT	StDevOfActJT	StDevOfSchJT
10	3	d	Occupation Lane/Birley Moor Road Location 2	Weekday	AM Peak	0.6633333626	0.846153846	455	455	0.210921848	0.361198352
10	3	d	Occupation Lane/Birley Moor Road Location 2	Weekday	Inter Peak	0.701444693	0.998820755	1696	1696	0.238253769	0.03433001
10	3	d	Occupation Lane/Birley Moor Road Location 2	Weekday	PM Peak	0.70038775	0.548076923	728	728	0.186359512	0.49802541
10	3	d	Occupation Lane/Birley Moor Road Location 2	Saturday	Morning	0.642376744	0.875968992	129	129	0.172973513	0.330901986
10	3	d	Occupation Lane/Birley Moor Road Location 2	Saturday	Peak Period	0.713223737	1	198	198	0.251239767	0
10	3	d	Occupation Lane/Birley Moor Road Location 2	Saturday	Evening	0.6666661345	0.823529412	119	119	0.19005503	0.382831972

Occupation Lane/Birley Moor Road, Inbound, Weekday - AM Peak

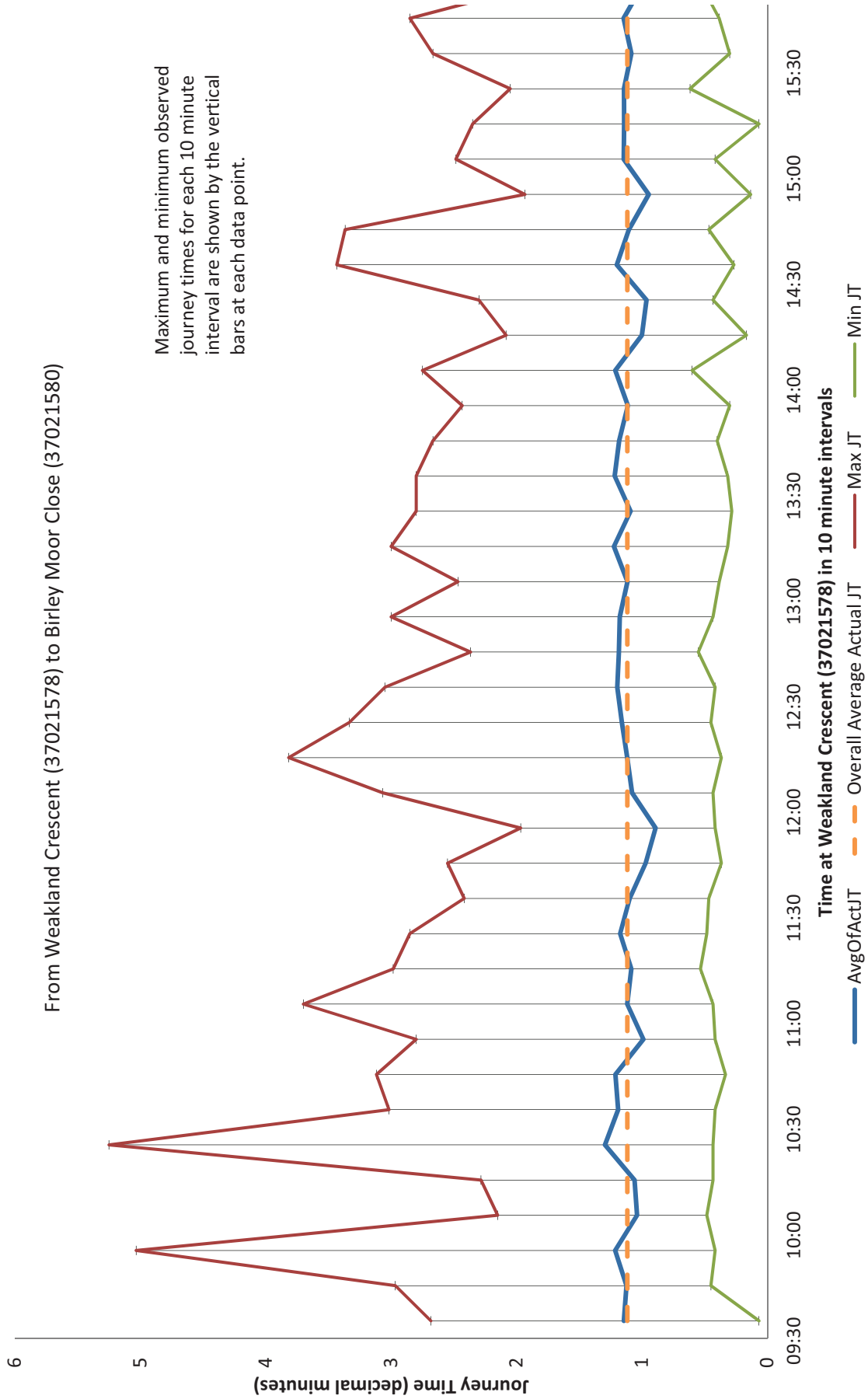
From Weakland Crescent (37021578) to Birley Moor Close (37021580)

Maximum and minimum observed journey times for each 10 minute interval are shown by the vertical bars at each data point.

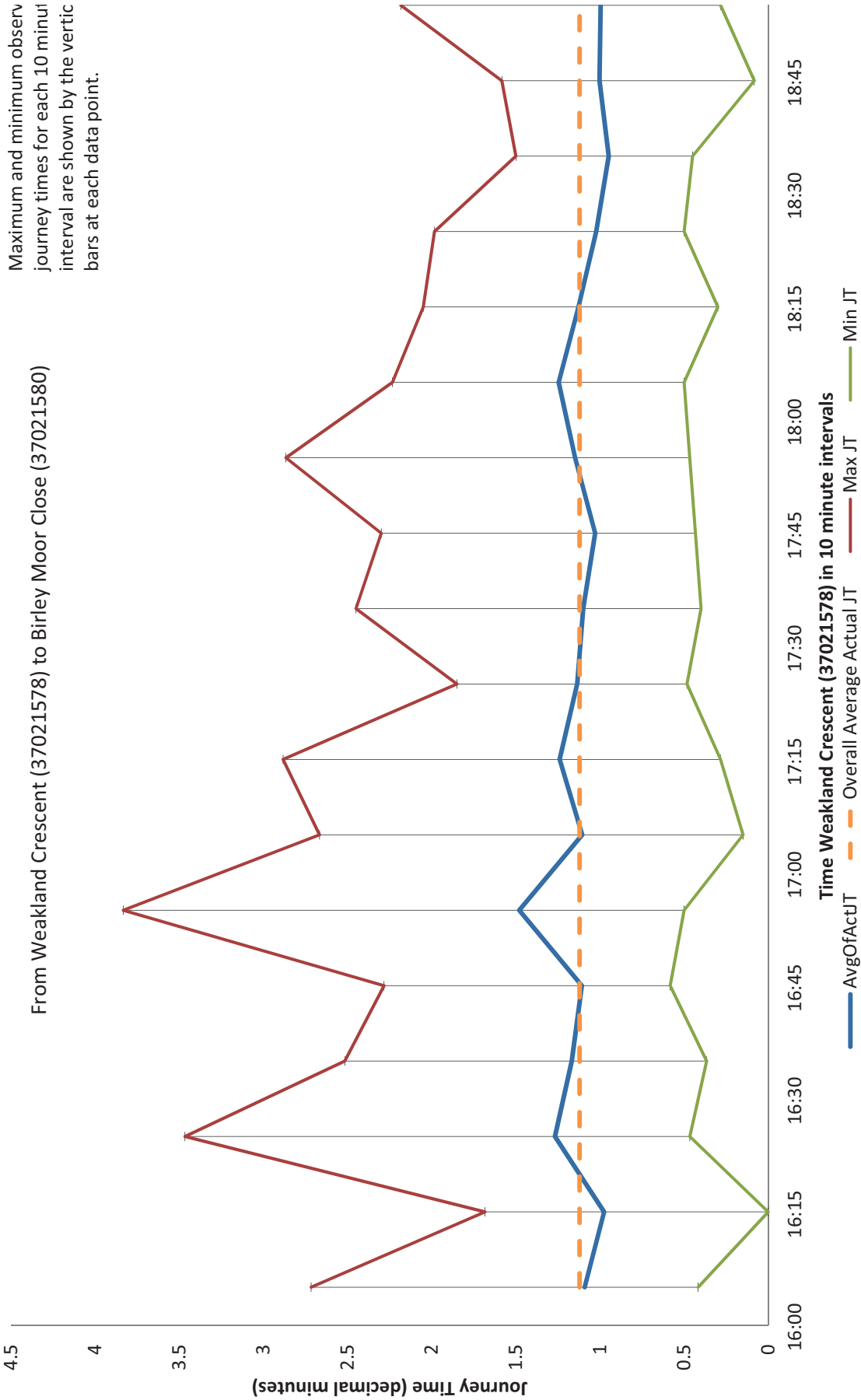


Occupation Lane/Birley Moor Road, Inbound, Weekday - Inter Peak

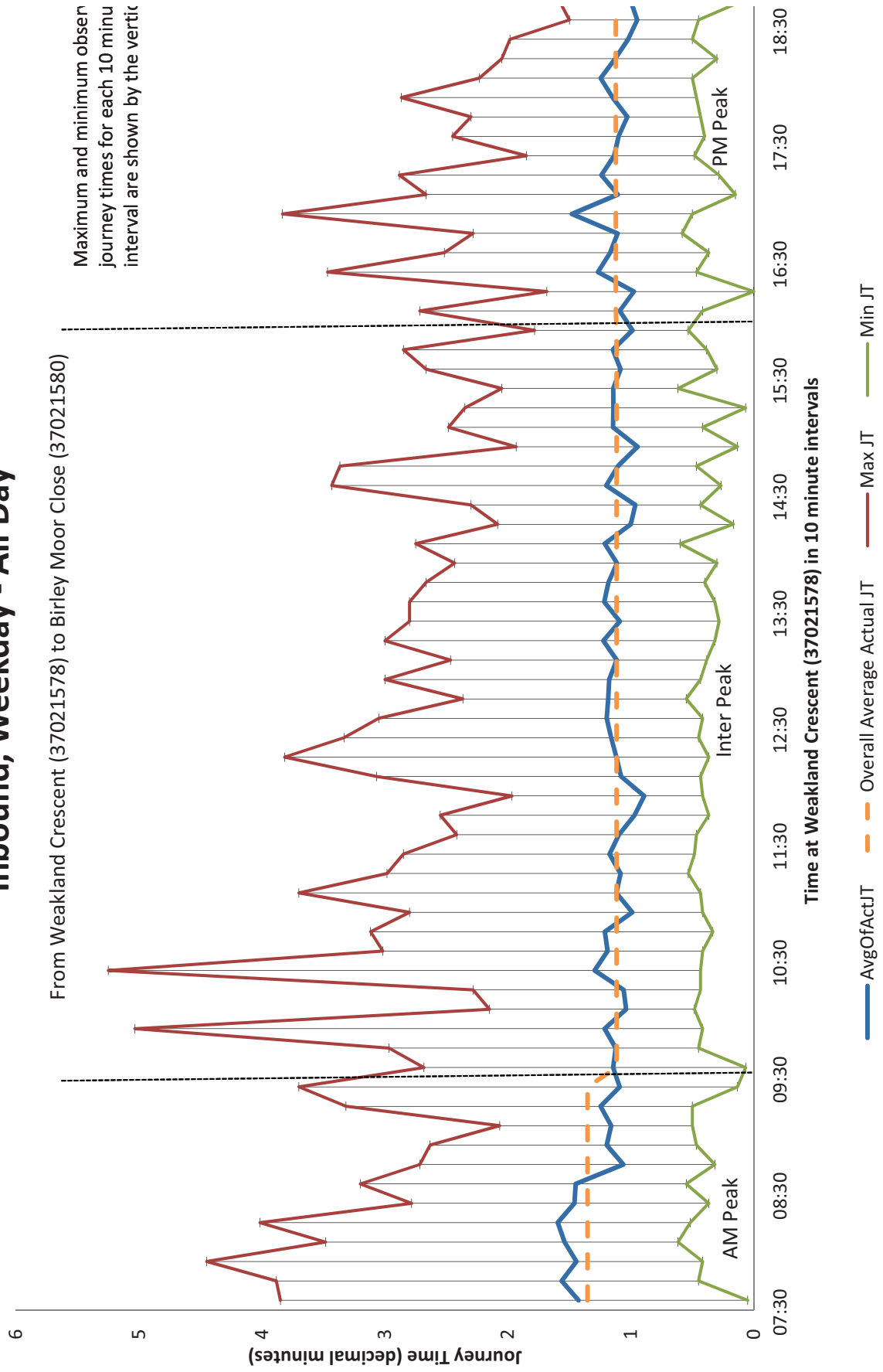
From Weakland Crescent (37021578) to Birley Moor Close (37021580)



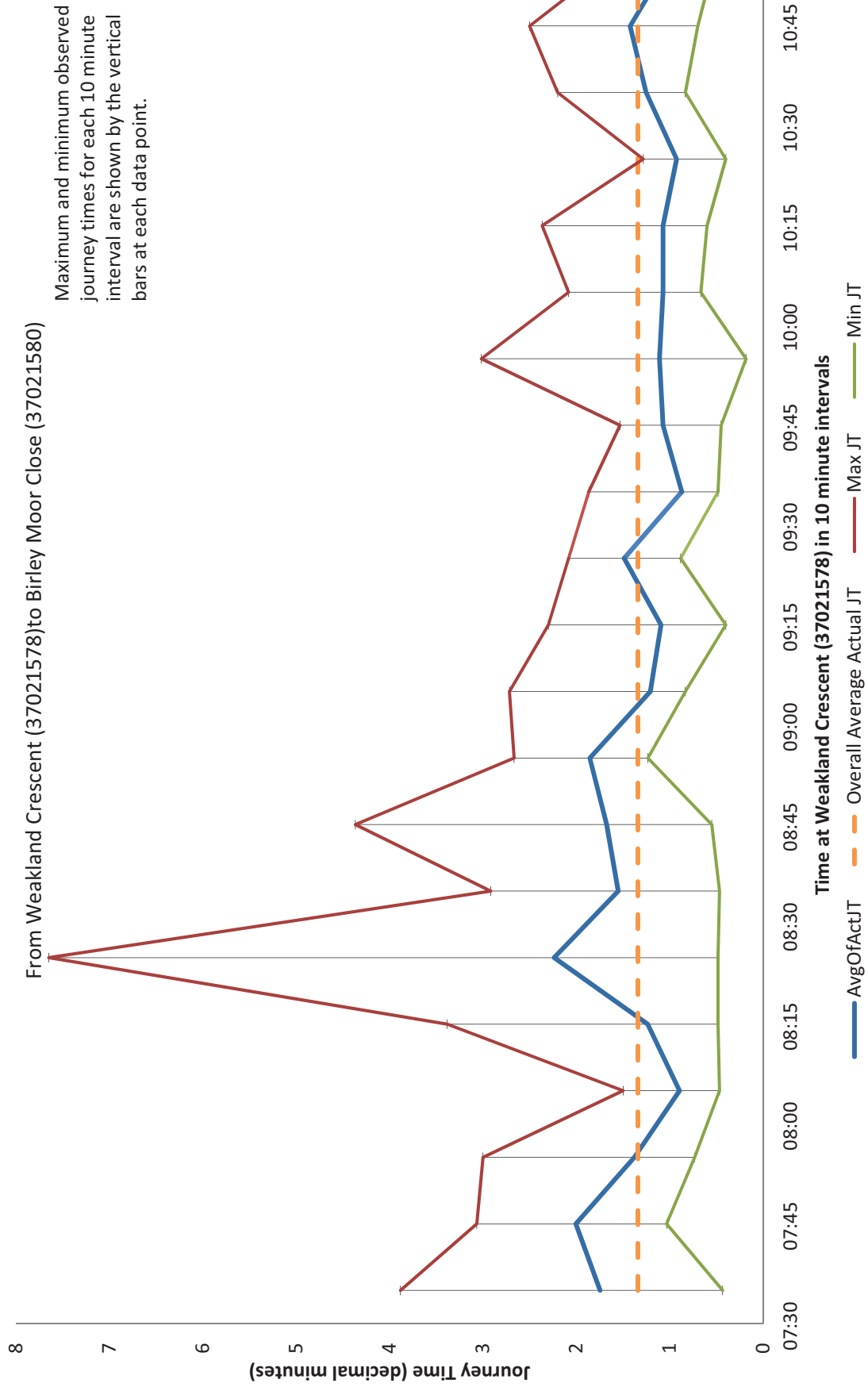
Occupation Lane/Birley Moor Road, Inbound, Weekday - PM Peak



Occupation Lane/Birley Moor Road, Inbound, Weekday - All Day

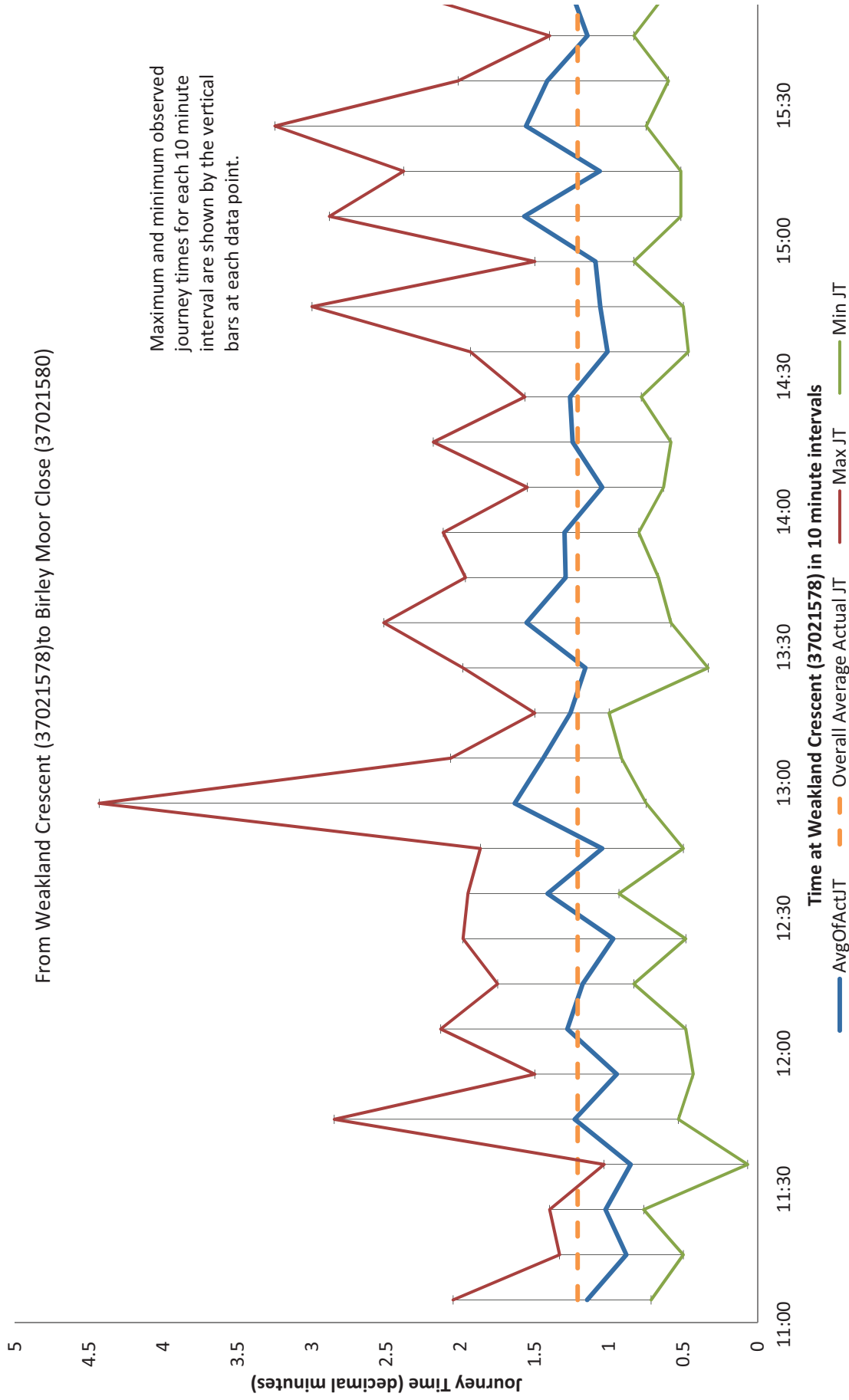


Occupation Lane/Birley Moor Road, Inbound, Saturday - Morning

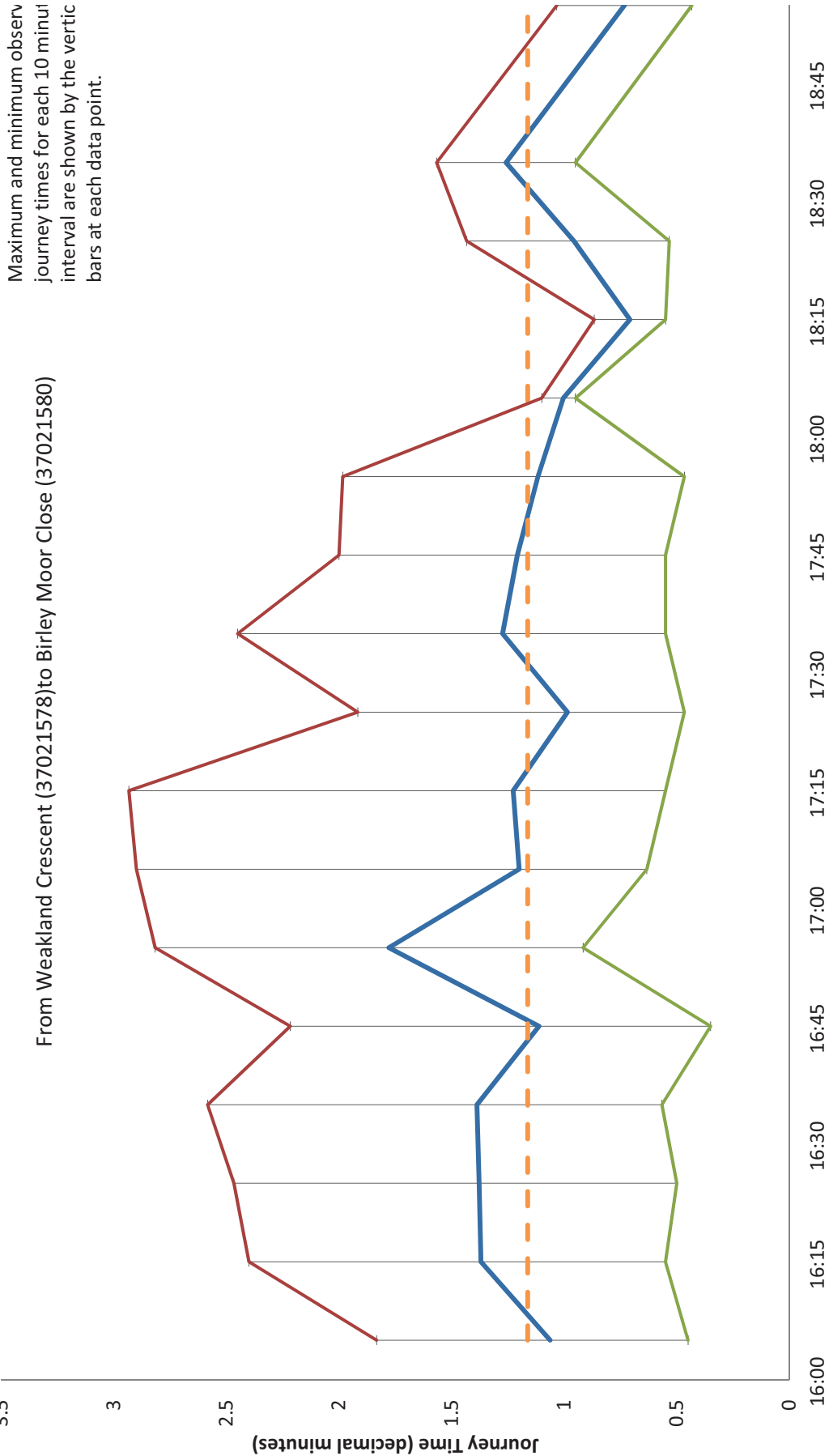


Occupation Lane/Birley Moor Road, Inbound, Saturday - Peak Period

From Weakland Crescent (37021578) to Birley Moor Close (37021580)



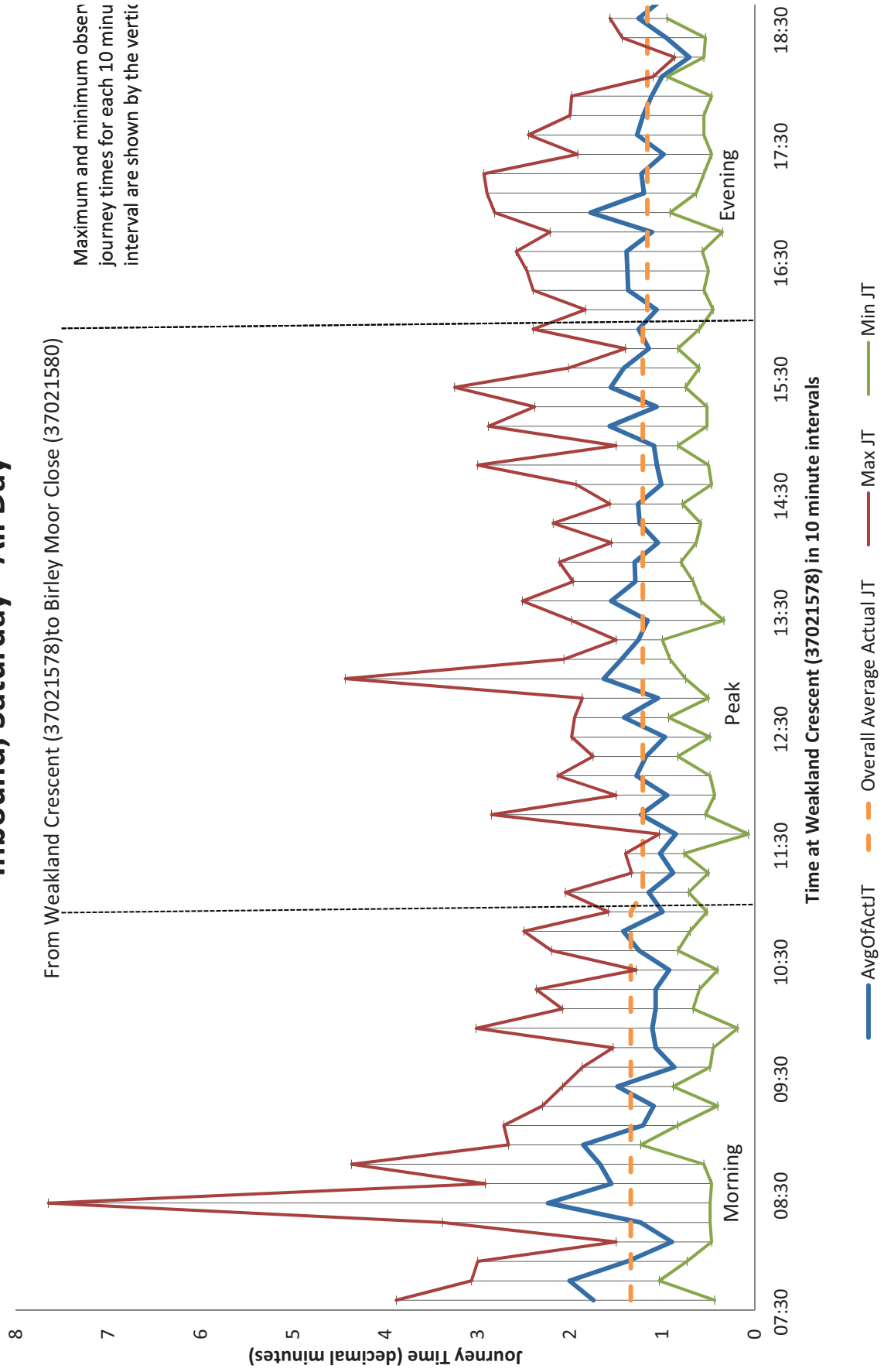
Occupation Lane/Birley Moor Road, Inbound, Saturday - Evening



Time Weekland Crescent (37021578) to Birley Moor Close (37021580) in 10 minute intervals

— AvgOfActJT — Overall Average Actual JT — Max JT — Min JT

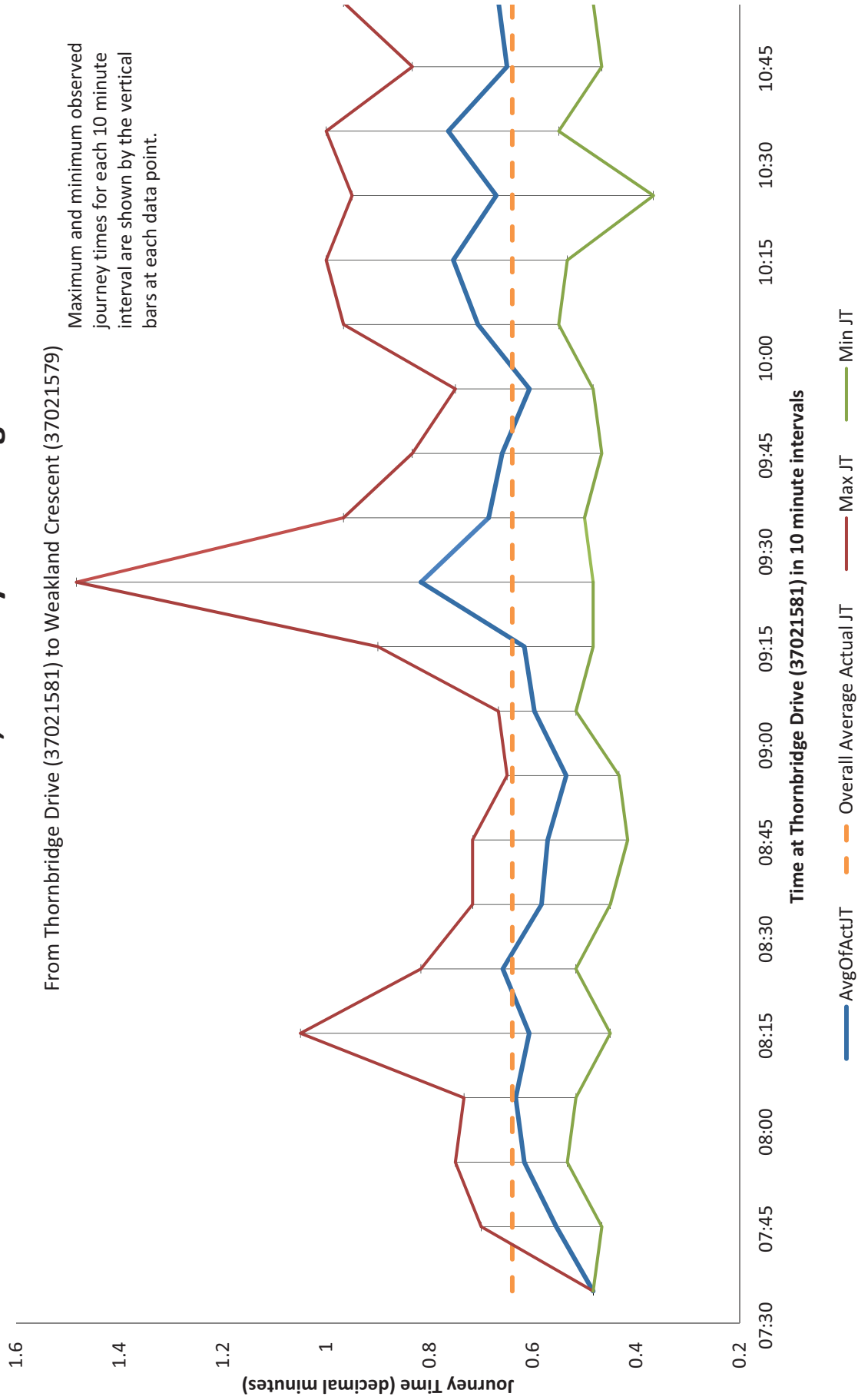
Occupation Lane/Birley Moor Road, Inbound, Saturday - All Day



Occupation Lane/Birley Moor Road, Outbound, Saturday - Morning

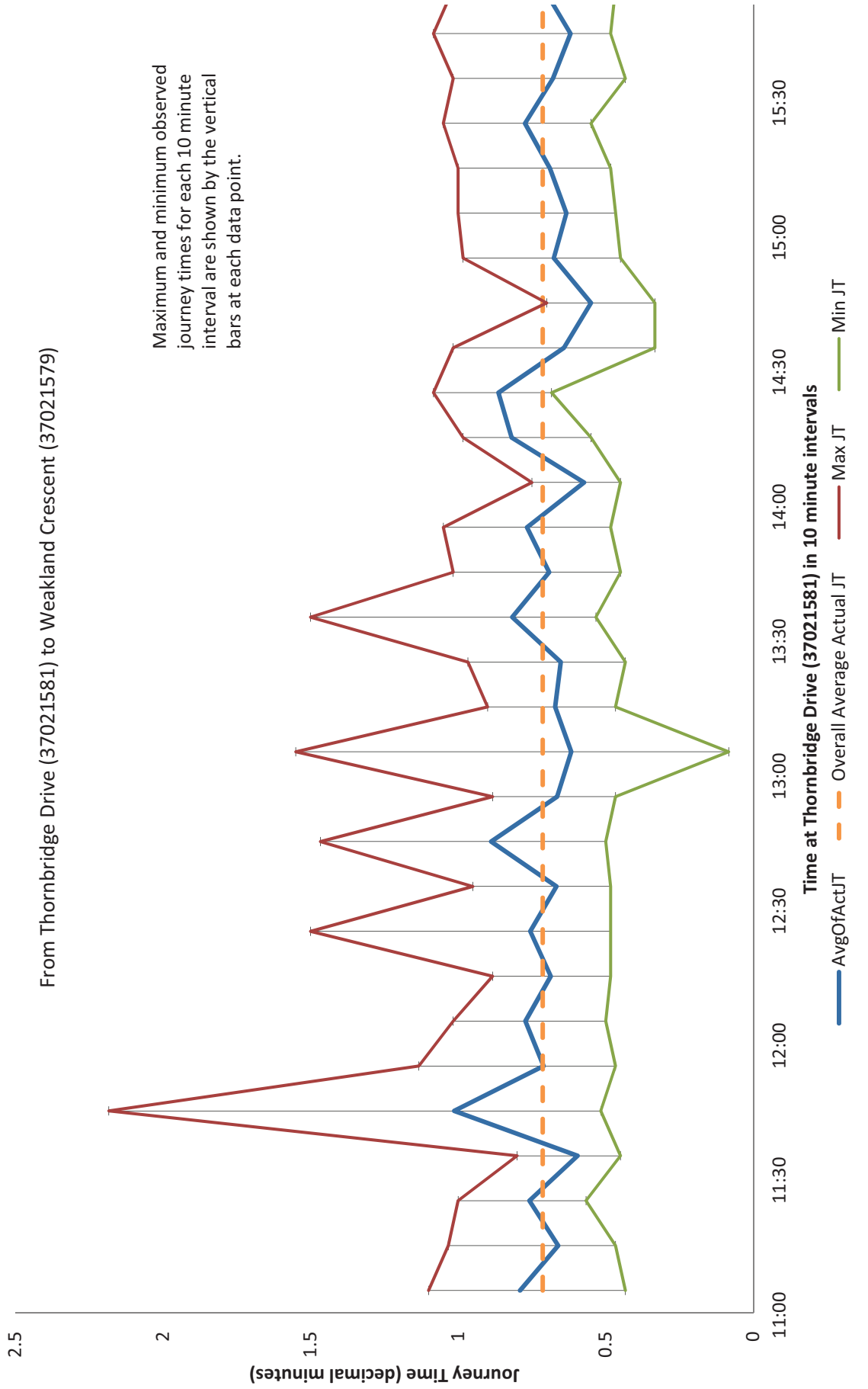
From Thornbridge Drive (37021581) to Weakland Crescent (37021579)

Maximum and minimum observed journey times for each 10 minute interval are shown by the vertical bars at each data point.



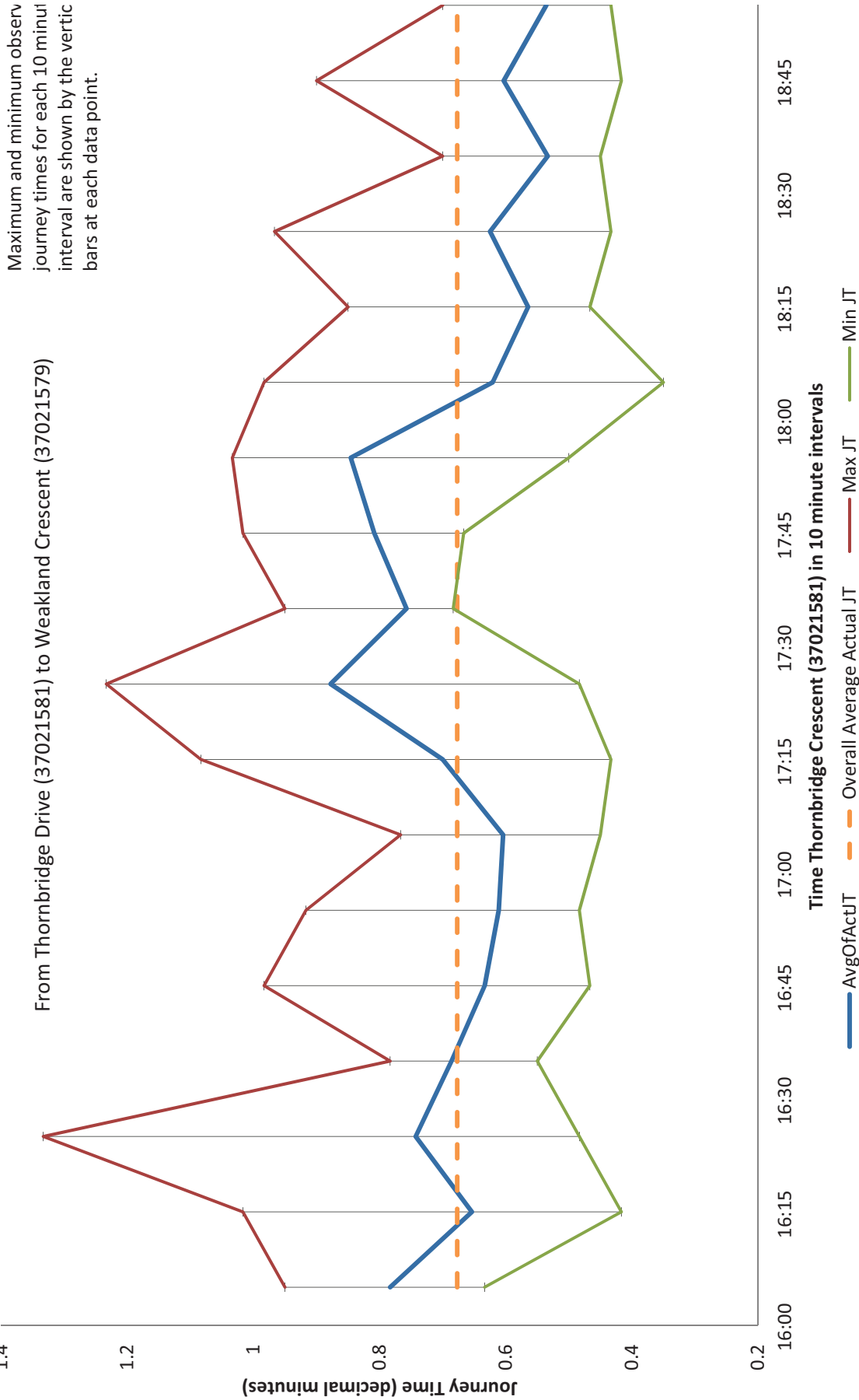
Occupation Lane/Birley Moor Road, Outbound, Saturday - Peak Period

From Thornbridge Drive (37021581) to Weakland Crescent (37021579)

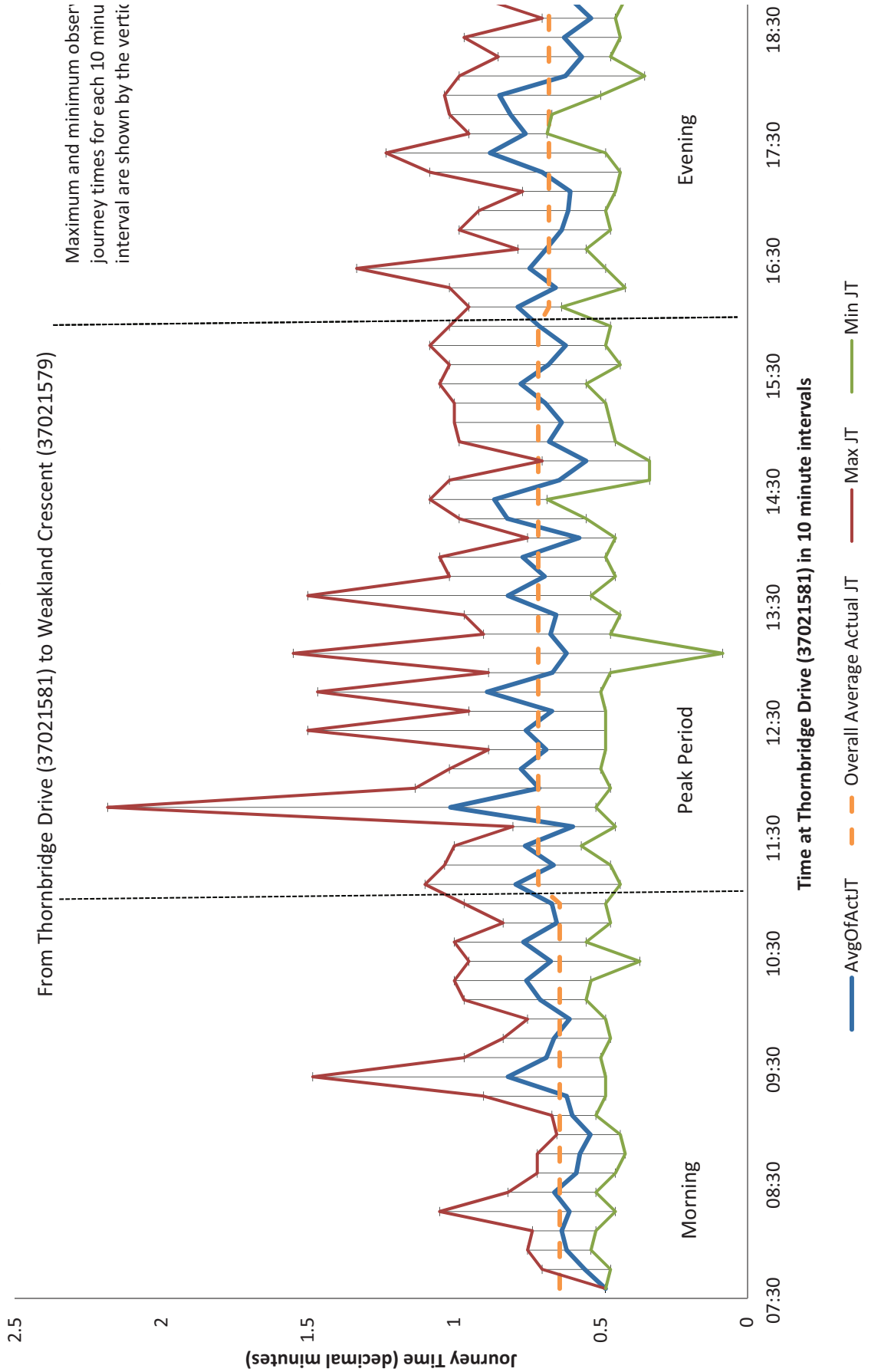


Occupation Lane/Birley Moor Road, Outbound, Saturday - Evening

From Thornbridge Drive (37021581) to Weakland Crescent (37021579)



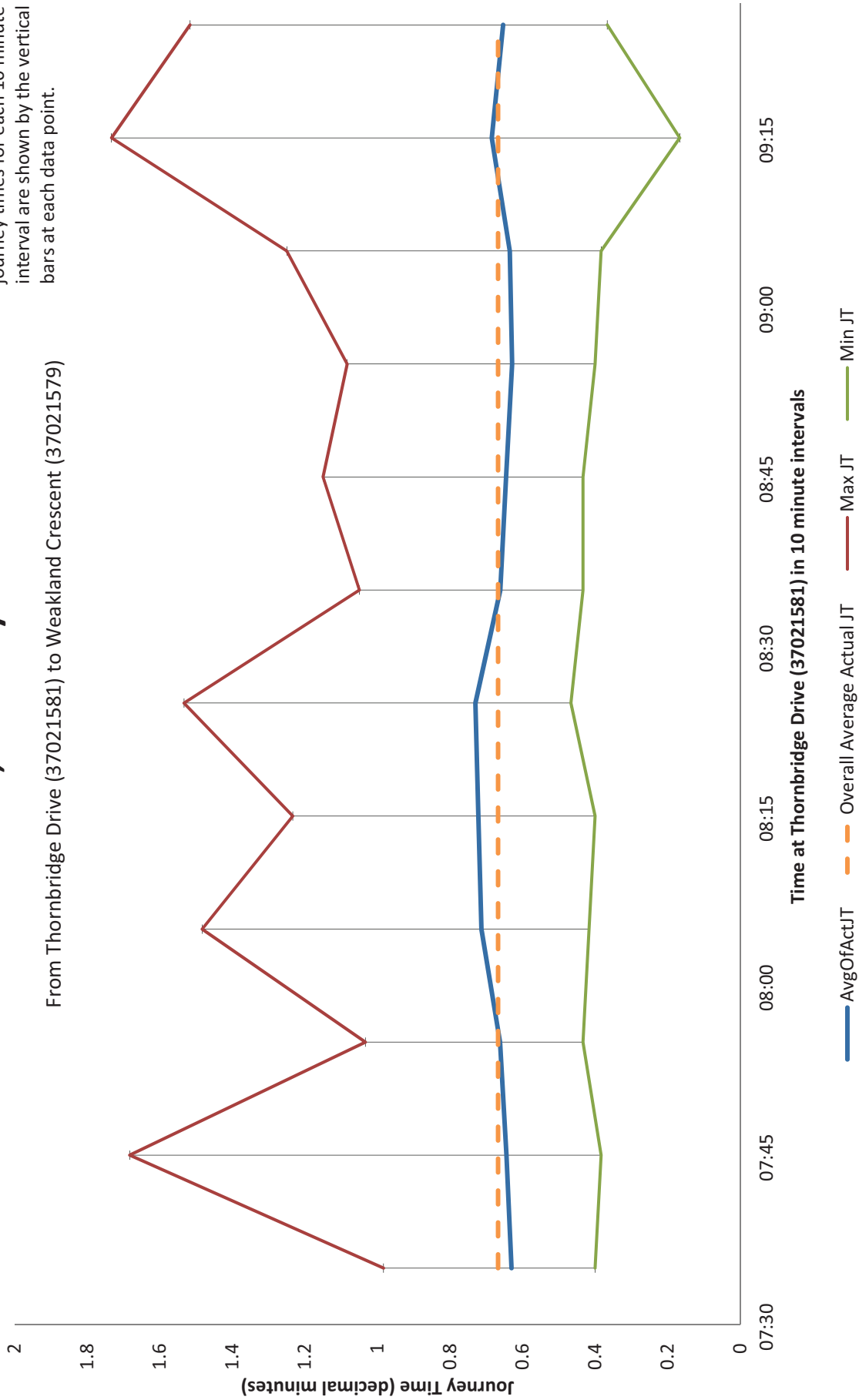
Occupation Lane/Birley Moor Road, Outbound, Saturday - All Day



Occupation Lane/Birley Moor Road, Outbound, Weekday - AM Peak

From Thornbridge Drive (37021581) to Weakland Crescent (37021579)

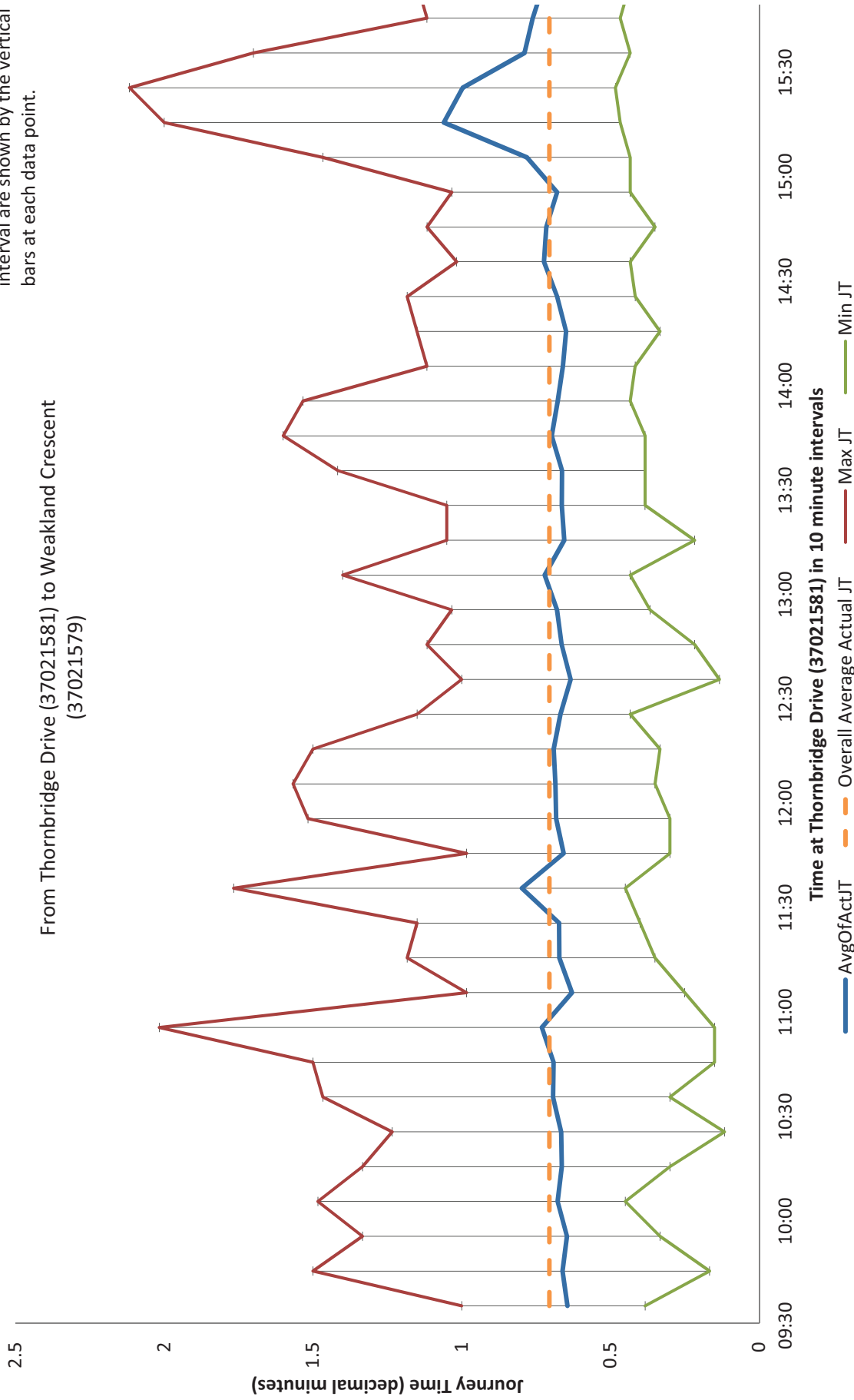
Maximum and minimum observed journey times for each 10 minute interval are shown by the vertical bars at each data point.



Occupation Lane/Birley Moor Road, Outbound, Weekday - Inter Peak

From Thornbridge Drive (37021581) to Weakland Crescent
(37021579)

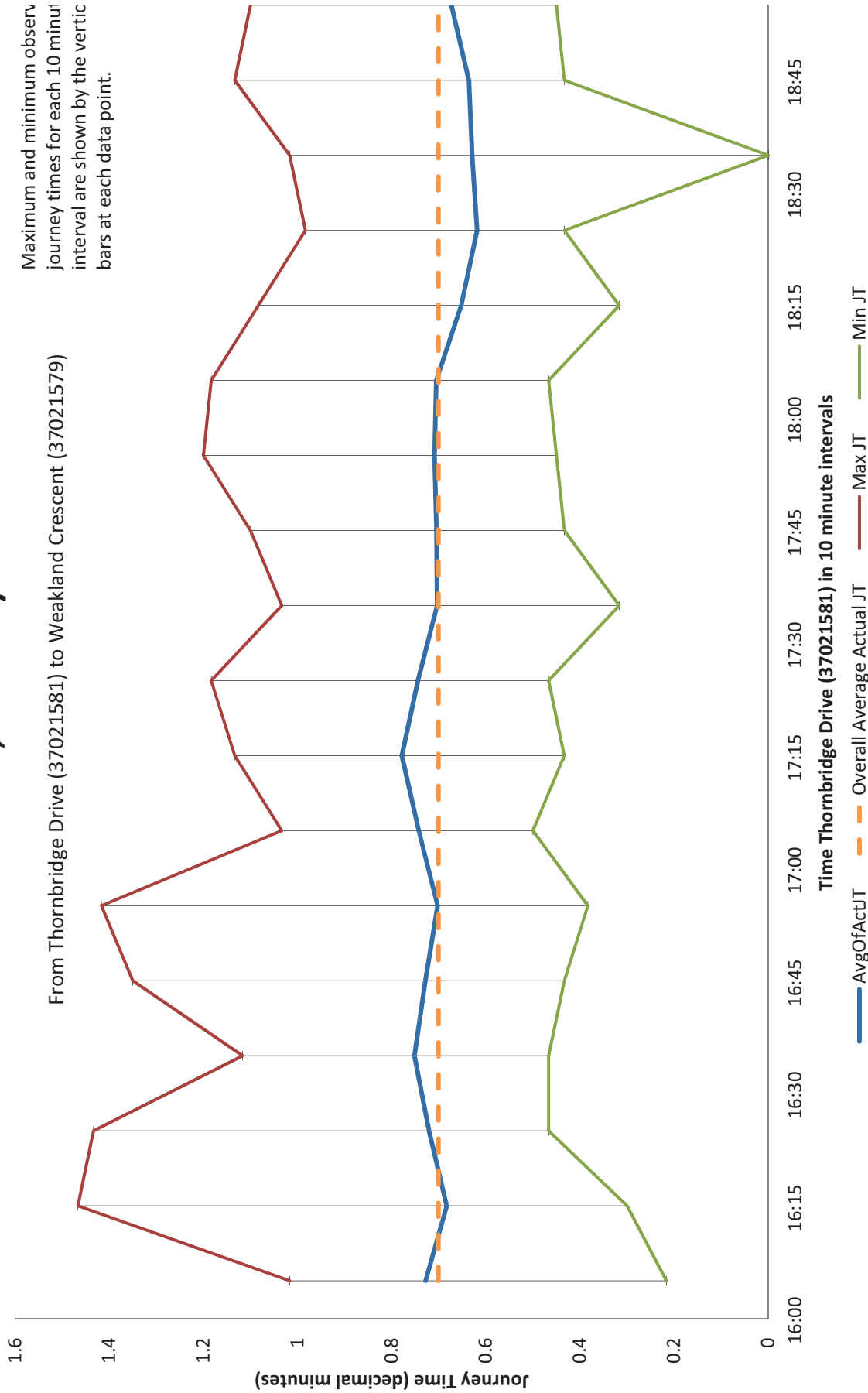
Maximum and minimum observed journey times for each 10 minute interval are shown by the vertical bars at each data point.



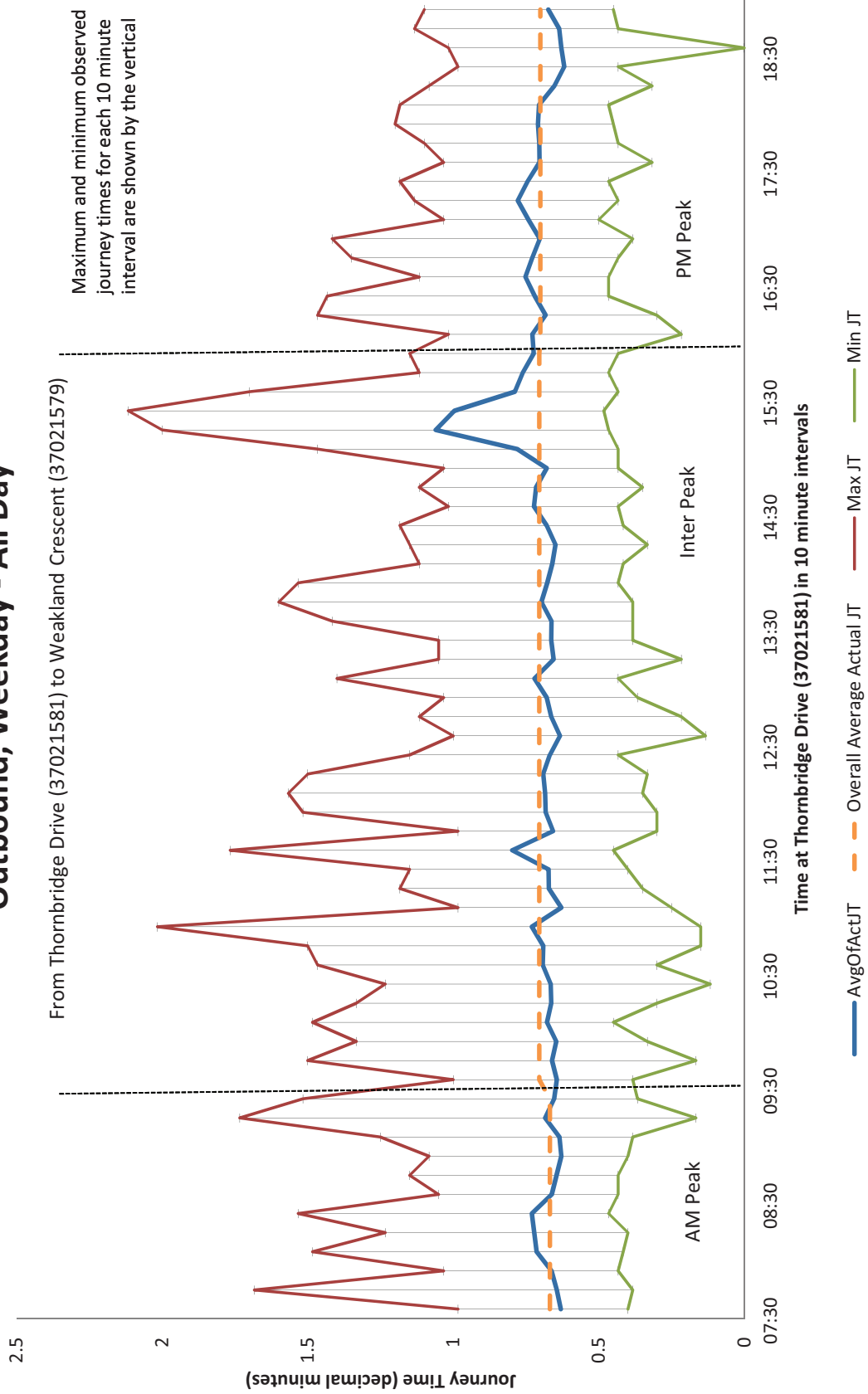
Occupation Lane/Birley Moor Road, Outbound, Weekday - PM Peak

From Thornbridge Drive (37021581) to Weakland Crescent (37021579)

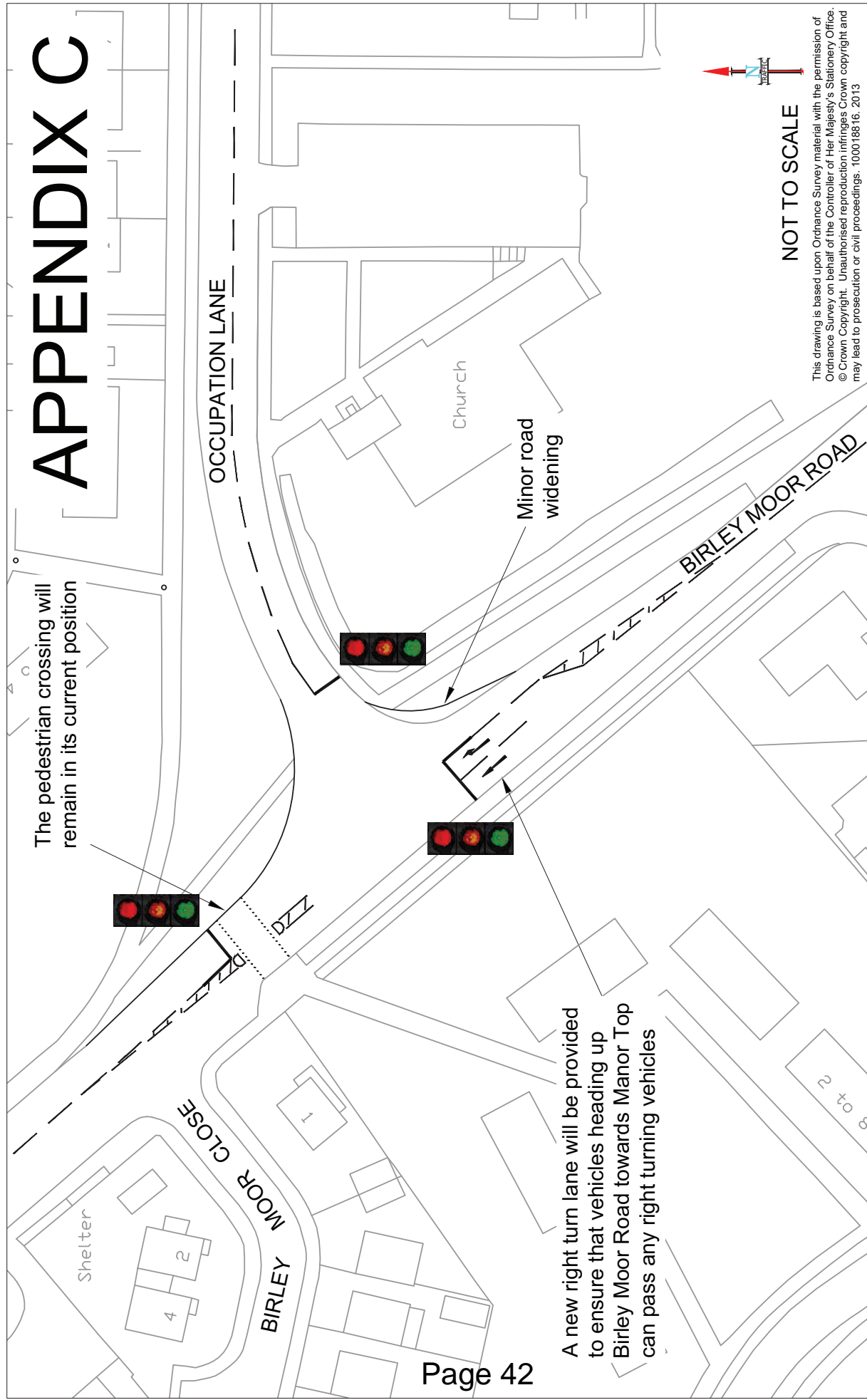
Maximum and minimum observ
journey times for each 10 minut
interval are shown by the vertic
bars at each data point.



Occupation Lane/Birley Moor Road, Outbound, Weekday - All Day



APPENDIX C



The pedestrian crossing will remain in its current position

A new right turn lane will be provided to ensure that vehicles heading up Birley Moor Road towards Manor Top can pass any right turning vehicles

NOT TO SCALE

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SEPT 2013

BIRLEY MOOR ROAD / OCCUPATION LANE
Proposed Traffic Signals
Appendix C - Indicative Layout

KEY BUS ROUTE - SHEFFIELD CITY CENTRE TO HALFWAY
IMPROVEMENT WORKS

Sheffield City Council Equality Impact Assessment



[Guidance for completing this form is available on the intranet](#)

Help is also available by selecting the grey area and pressing the F1 key

Name of policy/project/decision: Bus Key Route: City Centre to Halfway

Status of policy/project/decision: New

Name of person(s) writing EIA: Cate Jockel

Date: 10.09.12

Service: Development Services

Portfolio: Place

What are the brief aims of the policy/project/decision? To improve the City Centre to Halfway key bus route used by the high frequency 120 bus, in terms of reliability, accessibility, shelter and information.

Are there any potential Council staffing implications, include workforce diversity? No

Under the [Public Sector Equality Duty](#), we have to pay due regard to: “Eliminate discrimination, harassment and victimisation, advance equality of opportunity and foster good relations.” [More information is available on the council website](#)

Areas of possible impact	Impact	Impact level	Explanation and evidence (Details of data, reports, feedback or consultations. This should be proportionate to the impact.)
Age	Positive	Medium	Elderly will benefit from accessibility improvements in particular and also because they tend to have lower car ownership/use than the general population.
Disability	Positive	High	All bus stops will be improved to provide level boarding and tactiles, as well as a bus stop clearway, so that the bus can pull right in to the kerb.
Pregnancy/maternity	Positive	Medium	See disability.
Race	Neutral	-Select-	
Religion/belief	Neutral	-Select-	
Sex	Neutral	-Select-	
Sexual orientation	Neutral	-Select-	
Transgender	Neutral	-Select-	
Carers	Positive	High	See disability.
Voluntary, community & faith sector	Neutral	-Select-	
Financial inclusion, poverty, social justice:	Positive	Medium	The bus service will be more accessible and more reliable.
Cohesion:	Neutral	-Select-	
Other/additional:	-Select-	-Select-	

Areas of possible impact	Impact	Impact level	Explanation and evidence (Details of data, reports, feedback or consultations. This should be proportionate to the impact.)

Overall summary of possible impact (to be used on EMT, cabinet reports etc):

Fundamentally this proposal is positive for all Sheffield people regardless of age, sex, race, faith, disability, sexuality, etc. The project aims to improve the punctuality of the bus service; to provide better information (real-time) on its running; and make it easier to use for anyone with mobility difficulties including wheelchair users, people with pushchairs and people with visual impairments. No negative equality impacts have been identified.

If you have identified significant change, med or high negative outcomes or for example the impact is on specialist provision relating to the groups above, or there is cumulative impact you **must** complete the action plan.

Review date: **Q Tier Ref** / **Reference number:** /

Entered on Qtier: Yes **Action plan needed:** -Select-

Approved (Lead Manager): **Date:**

Approved (EIA Lead person for Portfolio): Ian Oldershaw **Date:**

Does the proposal/ decision impact on or relate to specialist provision: -Select-

Risk rating: -Select-

Action plan

Area of impact	Action and mitigation	Lead, timescale and how it will be monitored/reviewed
All groups		
-Select-		
-Select-		
-Select-		
-Select-		
-Select-		
-Select-		
-Select-		
-Select-		
-Select-		

Area of impact	Action and mitigation	Lead, timescale and how it will be monitored/reviewed
-Select-		
-Select-		

Approved (Lead Manager): **Date:**

Approved (EIA Lead Officer for Portfolio): **Date:**

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