

# Detailed journey time impacts

## Traffic reassignment

It is important to note that our traffic reassignment modelling is only ever indicative; it is intended to give an idea of where the impacts of changes in journey choice are most likely to be felt. It assumes that drivers have perfect knowledge of the network and will always choose the quickest route available. The reassignment is a picture of what the network may look like once the on-street proposals and associated driver behaviour has had a chance to bed in.

We would actively monitor and manage traffic conditions on the roads following the delivery of the scheme, and would aim to mitigate and manage traffic reassignment following implementation.

Incorporating other transformational schemes in the wider network and their associated signal strategies as well as this scheme's proposed layout changes, our modelling indicates a reduction in future flow through the local network. The traffic is reassigning onto the wider area as a result of all of these changes. In the morning peak we predict reductions on Waterloo Road, Waterloo Bridge and Stamford Street. The level of reassignment is expected to be less in the evening peak period but there are still reductions on key routes through the Waterloo scheme.

## General note on modelling

The Waterloo proposals are a transformative scheme at the centre of a growth area. It aims to improve interchange, connectivity and safety for all, and greatly improve the existing urban realm by creating a new public square.

This note explains the impacts we expect our proposals to have on journey times and is accompanied by a more detailed table of data. This table shows the predicted changes to journey times calculated from our traffic models, assuming the levels of reassignment predicted materialize.

We expect the proposals will result in changes, both positive and negative, to journey times for motorists, bus passengers and cyclists once complete.

TfL has used traffic modelling techniques to calculate the expected journey time changes through the area at the busiest hour in both the morning and evening peak. This table of data outlines the expected journey time impacts for general traffic, buses, pedestrians and cyclists.

## **Pedestrians**

Pedestrian modelling of the Waterloo transformative scheme has been undertaken using Legion pedestrian modelling software, TfL's preferred pedestrian modelling package.

The pedestrian modelling work has looked at different design options to ensure that improvements for pedestrian movement and interchange between buses, London Underground and Rail services are realised. The work has assessed different options, looking at all the possible ways pedestrian connectivity and safety could be improved alongside improvements of the urban realm environment.

The modelling work indicates that, when compared to the existing situation, the proposed scheme design will enhance transport interchange movements, pedestrian walking speeds will increase, journey times will improve and pedestrian crowding will reduce. Overall the modelling work indicates that pedestrians will benefit from the improvements around Waterloo.

## **Cycling**

With the proposed implementation of segregated cycle facilities around the new peninsula, cyclists will be protected from traffic movements where possible. Cycle progression has been optimised around other critical movements through the centre of the network, such as the egress from the new bus station on Waterloo Road. Therefore some cycling routes will experience improvements in journey times, such as westbound from Stamford Street due to signalisation of the previous give-way entry to the network, whereas others will experience delays.

## **Buses**

Changes to the road layout proposed by the scheme will have an impact on the operation of the bus network and passenger journeys around Waterloo Station. The removal of the roundabout will likely result in reductions in journey times on some routes, due to shorter distances travelled. Whereas other routes will likely experience journey time increases due to the new peninsula layout, additional segregated cycle facilities and signalising Stamford Street.

There are 34 bus routes (17 in each direction) which run through the area in both the morning and evening peak periods. Across both peak periods, five of these routes are expected to experience an increase of more than 30 seconds in journey time, as below. We predict the most impacted route will be the 381 westbound from Stamford Street, with forecast increases of 1-2 minutes. The most impacted routes are:-

- 4 South bound: Waterloo Bridge - Waterloo Road in the AM Peak
- 381 West bound & East bound: Stamford Street - York Road in the AM Peak

- 381 East bound: York Road - Stamford Street in the PM
- RV1 North bound: Concert Hall Approach - Waterloo Bridge in the PM Peak

### **General traffic**

The changes being proposed are likely to mean that journey times for general traffic can be expected to increase at certain times of day, whilst there will also be expected journey time savings. In the morning peak, assuming predicted flow reductions, journey times will increase on most of the key movements except Waterloo Road northbound. In the evening peak journey times are expected to increase on Waterloo Road northbound and York Road eastbound.

### **Complementary measures**

The impacts presented by the traffic modelling do not take account of a range of additional complementary measures that would have beneficial impacts on journey times for buses and general traffic:

- Where there are negative impacts on journey times for bus routes shown in the table, a programme of work is being investigated to save time elsewhere along the affected routes by addressing delays and giving priority to buses at certain pinch-points
- We will invest in more advanced traffic signal technology and will use the signals to more effectively regulate the flow of traffic at certain locations to keep London moving
- We are working to improve road user information so people can make informed journey choices before they travel.

## Data Tables

### Cyclist journey times

Current Journeys		Future Base Journey Time (minutes)		Scheme Journey Time (minutes)		Difference between Future Base and Modelled Scheme (secs/mins)	
Direction		AM	PM	AM	PM	AM	PM
Waterloo Road - Waterloo Bridge	Northbound	3-5	3-5	3-5	3-5	0-30	31-60
Waterloo Bridge to Waterloo Road	Southbound	2-3	3-5	3-5	3-5	31-60	-(1-2)
Stamford Street to York Road	Westbound	2-3	5-10	2-3	5-10	0-30	-(2-3)
York Road to Waterloo Bridge	Northbound	3-5	2-3	3-5	3-5	31-60	31-60
York Road to Stamford Street	Eastbound	2-3	2-3	3-5	3-5	1-2	1-2

### Bus journey times

Current Journeys		Future Base Journey Time (minutes)		Scheme Journey Time (minutes)		Difference between Future Base and Modelled Scheme (secs/mins)	
Direction		AM	PM	AM	PM	AM	PM
Route 521 (Waterloo Station - London Bridge Station)	Northbound	1-2	1-2	1-2	1-2	0-30	-(0-30)
	Southbound	2-3	2-3	1-2	2-3	-(0-30)	-(0-30)
Route 381 (Peckham Bus Station - County Hall)	Westbound	3-5	>10	3-5	>10	1-2	-(1-2)
	Eastbound	3-5	2-3	3-5	3-5	1-2	1-2
Route 76 (Lower Marsh - Philip Lane)	Northbound	3-5	2-3	2-3	2-3	-(1-2)	-(0-30)
	Southbound	2-3	2-3	1-2	2-3	-(0-30)	0-30
Route 243 (Waterloo Station - Russell Square Station)	Northbound	2-3	1-2	1-2	1-2	-(0-30)	-(0-30)
	Southbound	2-3	2-3	1-2	2-3	-(0-30)	0-30
Route 168 (Dunton Road - South End Green)	Northbound	1-2	1-2	1-2	1-2	0-30	0-30
	Southbound	2-3	2-3	2-3	2-3	0-30	-(0-30)
Route 1 (Canada Water - Tottenham Court Road)	Southbound	1-2	2-3	2-3	3-5	0-30	0-30
	Northbound	1-2	1-2	1-2	1-2	0-30	0-30
Route 4 (Waterloo Station - Archway Station)	Northbound	2-3	2-3	2-3	2-3	-(0-30)	-(0-30)
	Southbound	1-2	2-3	2-3	2-3	31-60	-(0-30)
Route 26 (Waterloo Station - St Mary of Eton Church)	Northbound	3-5	2-3	2-3	2-3	-(31-60)	-(0-30)
	Southbound	1-2	2-3	2-3	2-3	0-30	-(0-30)
Route 59 (Streatham Hill - Kings Cross)	Northbound	1-2	1-2	1-2	1-2	0-30	0-30
	Southbound	2-3	3-5	2-3	2-3	0-30	-(0-30)
Route 68 (Euston Station - West Norwood Station)	Northbound	1-2	1-2	1-2	1-2	0-30	0-30
	Southbound	2-3	3-5	2-3	3-5	0-30	-(0-30)
Route 139 (West End Green - Waterloo Station)	Southbound	2-3	2-3	2-3	2-3	0-30	-(0-30)
	Northbound	1-2	2-3	1-2	1-2	-(0-30)	-(0-30)
Route 171 (Holborn Station - Catford Garage)	Southbound	2-3	3-5	2-3	2-3	0-30	-(0-30)
	Northbound	1-2	1-2	1-2	1-2	0-30	0-30
Route 172 (Little Britain - Chandos)	Southbound	2-3	3-5	2-3	3-5	0-30	-(0-30)
	Northbound	2-3	2-3	2-3	2-3	0-30	0-30
Route 176 (Tottenham Court Road Station - Penge)	Southbound	2-3	3-5	2-3	3-5	0-30	0-30
	Northbound	1-2	2-3	2-3	2-3	0-30	0-30
Route 188 (Russell Square Station - North Greenwich Station)	Southbound	1-2	2-3	2-3	2-3	0-30	-(0-30)
	Northbound	1-2	1-2	1-2	1-2	-(0-30)	0-30
Route 341 (Lower Marsh - Glover Drive)	Southbound	2-3	2-3	1-2	2-3	-(31-60)	0-30
	Northbound	2-3	2-3	2-3	2-3	0-30	0-30
Route RV1 (Covent Garden - Tower Gateway Station)	Northbound	1-2	1-2	1-2	2-3	0-30	1-2
	Southbound	2-3	2-3	1-2	2-3	-(0-30)	0-30

SUMMARY		
Journey Time Difference Future Base v Modelled Scheme (seconds)	Bus Routes (total)	
	AM	PM
>-60 < -30	3	0
>-30 < 0	8	17
>0 < 30	20	15
>30 < 60	1	0
>60 < 90	2	1
>90 < 120	0	1

### General traffic journey times

Current Journeys		Future Base Journey Time (minutes)		Scheme Journey Time (minutes)		Difference between Future Base and Modelled Scheme (secs/mins)	
Direction		AM	PM	AM	PM	AM	PM
Waterloo Road - Waterloo Bridge	Northbound	3-5	3-5	3-5	2-3	-(1-2)	-(31-60)
Waterloo Bridge to Waterloo Road	Southbound	2-3	2-3	2-3	2-3	0-30	-(31-60)
Stamford Street to York Road	Westbound	2-3	5-10	3-5	5-10	1-2	-(0-30)
Stamford Street to Waterloo Bridge	Northbound	3-5	1-2	3-5	3-5	-(0-30)	1-2
York Road to Stamford Street	Eastbound	3-5	1-2	3-5	3-5	31-60	1-2